

From the Spectator.

## MR. M. HOBART SEYMOUR'S PILGRIMAGE TO ROME,\*

Is an able and informing book ; treating with freshness a country so exhausted as Italy, by directing the mind to a definite subject and considering it widely and deeply. Landscapes, art, the social condition of the people, and the more remarkable classes into which natural disposition and circumstances may form them, are not overlooked during the author's Italian tour, though mostly viewed with some reference to religion ; but on his arrival at Rome religion alone occupies his pages, not merely in its strictly religious aspect, but in its social and intellectual influences. "The essential object of my pilgrimage," says Mr. Seymour, "was religion, and the main subject of these papers must be religion. Those who seek information on the antiquities of Rome, its temples, palaces, and theatres, will find ample assistance in many able and learned works, and I cannot add one item to the amount of such information ; but as the state of religion is less known—as there is far too little understood in England respecting the actual, the real state of religion at Rome—of the monastic institutions—of the high ceremonies—of the holy relics—of the manner of worship in this city of the church—I shall devote myself exclusively to the religion of the church—to the description of the state of Romanism at Rome."

The task could not have fallen into better hands, unless it had been undertaken by a large-minded and conscientious philosopher. Mr. Seymour is an Anglican clergyman, of mature years and masculine intellect, well read in general and theological literature, with distinct and rational views of Romanism, Tractarianism, and Protestantism. He sees clearly that natural or national character influences men in the choice of a creed, as much as the doctrines of the creed themselves ; and that the effects of a religion are to be looked to as much in their economical as in their strictly theological operation. A man of the world, he explains if he does not tolerate worldly frailties ; and seems rather inclined to allow for vices of the blood enforced upon men, if they do not take a gross and profligate form. A stanch and uncompromising Protestant, not shrinking from denouncing in terms theological the worse errors of the Romish Church, he does not adopt the extreme step of parading the "damnable and idolatrous" at every turn : it may indeed be objected by some, that he looks at mat-

ters with an eye rather professional than religious, bringing forward the scenical and worldly character of Romanism more than its deadening and dangerous influence upon the souls of its votaries. This, however, gives a peculiar and an informing character to the *Pilgrimage*, by stripping Romanism, and especially the conventual system as seen in Italy, of a romantic and mysterious character. We see the system as an abuse arising from other abuses. Were civil and political liberty greater, and the "nobler" prejudices against commercial and professional industry less, a career would be opened to younger sons, which would enable them to marry and support families, instead of being compelled as at present to enter a monastery, either ordained or half-ordained ; while this enforced celibacy induces a lax moral state of society, that renders it advisable, at least in Italian opinion, to remove unmarried women from its temptations.

The literary character of Mr. Seymour enables him to present his views and matter with effect. He has a mental vigor which under other circumstances would have given him the power of the platform and made him eminent as a sectarian orator ; but the training of the university has saved him from the mechanical force and mannerism of congregational eloquence. The discipline of the college, classical study, and not improbably association with the world, have given him a better taste, without depriving him of his vigor. He is also a full-minded writer. Whatever subjects he touches upon he presents completely, and is exhaustive without tediousness. This cast of mind well qualifies him for the task of investigation and exposition which he has undertaken. Whatever Mr. Seymour's subject is, he presents it fully ; and the reader, if he may not always agree with the author's conclusions, has the materials to form a judgment of his own. Something of the pulpit is occasionally visible in the manner and the dogmatic tone ; but this is chiefly on religious topics, and is difficult for a clergyman to avoid.

The preliminary tour of Mr. Seymour was brief and short. In September, 1844, he was with his wife in Switzerland ; whence the "Pilgrimage to Rome" was determined on. From Vevay they crossed the Simplon to Milan ; passing through the Canton Vallais, and inquiring into the then recent outbreak between the peasantry and their priestly rulers or tyrants. Leaving Milan, Mr. Seymour proceeded to Genoa by Pavia, in order to make a pilgrimage to the tomb of his favorite Saint Augustine—though it would require a strong faith in relics to believe that *his* bones are there. From Genoa the travellers went to Florence ; and, after lingering delighted with the city and its government, they proceeded onward to Rome by the cities

\* A Pilgrimage to Rome : containing some account of the High Ceremonies, the Monastic Institutions, the Religious Services, the Sacred Relics, the Miraculous Pictures, and the General State of Religion in that city. By the Reverend M. Hobart Seymour, M. A.

of ancient Etruria. It will be seen that the tour was made before the late revolutions in Italy; but this has no effect upon the importance or interest of the book. Mr. Seymour's observations extend to matters deeply rooted in the present state of society, or inextricably interwoven with the practice of the Romish Church. The latter are not likely to be changed by any clerical influence, though they might possibly be overturned by the violence of a destructive revolution: the social evils would only be made worse by any sudden change; though gradual improvement, by opening a career to the men, and purifying the moral character of society, would render monasteries less necessary and less used—a process which Mr. Seymour thought was beginning in Northern Italy.

Many topics are handled at Rome in as many chapters—the behavior and religious character of the people as shown in their attendance on the services; the practices of the church in its principal festivals or ceremonies; Romish superstitions in its system of relics and indulgences; the character and principles of the Jesuits; with similar topics. The most important, however, is the monastic establishments, both for men and women; and the only one our space allows us to touch upon.

In Mr. Seymour's view, the conventual system, everywhere and in all time, is exaggerated and misunderstood by the Tractarians; while an erroneous notion is formed of it, as existing in Italy, by English people in general. Those institutions differ as much in their comforts and resources as boarding-houses in England; but they have two broad distinctions. One class is adopted for the younger sons of respectable families, where the accommodations vary according to the endowment and the sum paid as admission-money; but in all cases a premium, or family interest, which may in some cases supersede it, coupled with the endowment of the convent, is a provision for life. The poorer monasteries vary in their wealth, or rather poverty; but some are so wretchedly poor that their members are little above workhouse paupers in England. No entrance-money is required in these, as "no person with five pounds in the world would enter them:" their members are of the lowest class of society; the institutions are chargeable with all the economical evils which Hume and the French philosophers ascribed to the system of monkery, in diverting the vulgar from useful labor; besides the foul and discreditable view in which they present religious orders of men. Of the best of the higher orders Mr. Seymour draws the following picture. Speaking of the custom that it was usual to look to the church as a provision for the younger sons, he says—

It is not, however, in the same sense as that expression implies in England, where it implies ordination, and ministerial charge and parochial duties. It merely implies the becoming a member of some monastery, without any duties or responsibilities being necessarily involved in it.

Some of these convents are well and richly en-

dowed; and as they are conducted with great respectability, are supplied with many comforts, and impose no rigid discipline, they admit only a superior class of persons as members, with the exception of a few laymen of the lower classes, who are admitted on the express understanding of their being servants to the others—acting as porters, cooks, messengers, &c. In convents of this class, the mode of life is not unlike that of some members of our English universities. Having nothing to do, they live in their apartments, dine together, gossip with one another, attend the prescribed number of services at chapel; sometimes, where their taste so inclines, they give themselves to study, and thus spend what some regard as a pleasant bachelor's life. This is precisely the character of the more respectable convents of Rome; religion and religious feeling having as little to do with the matter as with a college life in England.

It is not religion, but convenience, that has dictated the system. And the whole interior life of a convent of the superior class bears all the traces of this. Some of them offer a considerable amount of comfort to their members, with pleasant gardens, a good library, and an excellent table, with well-finished apartments. In one establishment—through the whole of which I was kindly conducted by one of its members—there was appropriated to each, a suit of small apartments, consisting of a sitting-room, a sleeping-room, and a little study, all opening into another vacant apartment, or hall, or gallery; and the whole being separated by a door from all the rest of the establishment. There were twenty-two gentlemen living in this convent, every one of them possessing a similar suite of apartments. And though to the eye of one accustomed to the comforts of an English house there always seemed a lack of comfort about these establishments, yet such is the general character of an Italian house. And I am bound in candor and honesty to say, that the bachelor life of a convent in Italy is in every respect, considering the two countries, equal in comforts and in society and enjoyment to the general run of a college life in England. In some respects it has a decided advantage.

Into some of these convents of the superior class it is difficult to obtain admission as members or brothers. They are well and richly endowed, and some require considerable interest; some require family connection, as the appointments rest with certain families—like the Founder's kin in our universities; some require a considerable sum of money—as five hundred pounds—and then the member is provided for life with his home, his support, and his clothing. \* \* \*

I do not feel disposed to attribute to the monks and friars of Rome any special irregularity or impropriety of life. Every one knows, who has any knowledge of the world, that when a number of unmarried men are living together in a barrack, or residing together in a college, the atmosphere of such places is not usually more pure and moral than elsewhere. The experience of the world has long since settled this matter. Now, the convents of the higher classes in Italy are neither more nor less than large boarding-houses for the younger sons of the aristocracy—a sort of club, arranged in an Italian fashion, where they can live cheaply and well, and enjoy the society of those who are in every respect their equals, within the establishment, and at all times go forth to enjoy any society more suited to their tastes, without the establishment. And, under a system like this, it is contrary to all expe-

rience of mankind and all knowledge of the world to suppose that in such large assemblages of young and unmarried men there should not be a certain amount of irregularity and impropriety. The climate and society of Italy have never been remarkable for purity of morals.

The results are what might be anticipated. Some, whose inclinations lead them to study, devote themselves to the acquisition of knowledge in the various departments of literature, and have proved themselves among the most intellectual, learned, and able men of the age, while they are the most polished and agreeable companions. Some, whose tendencies are towards religion, or whose ambition is to rise in the state, devote themselves to the acquisition of ecclesiastical knowledge and political intrigue, which fill at Rome the place of parliamentary talent to the ambitious aspirant in England; the only channel to power at Rome being through the church: others, whose indolence or whose recklessness make them indifferent to such things, devote themselves to the amusement of the passing hour; and accordingly they are seen in the drawing-room, and in the billiard-room, and at the gaming-table, and in every place of fashion or amusement. Truly, they are sometimes where they ought not to be; realizing the old song, "up stairs and down stairs, and in my lady's chamber."

The subject of nunneries, or, as they are always called in Italy, monasteries, is treated quite as clearly, and has perhaps more interest. They equally furnish a provision for life for unmarried daughters of the gentry class; when a father has placed his daughter in an establishment of this kind, society considers he has done his duty and provided for her. Socially speaking, indeed, they are more necessary than the monasteries for the men: but as the age at which girls are admitted is early, and their knowledge little, great misery, according to all that Mr. and Mrs. Seymour could learn, is the result; and dark deeds are hinted at. Still, in our author's view, they are a social necessity, arising from social circumstances. The whole section is well worth perusal; but we must limit ourselves to a little romance of real life, and much better than an invented one. After speaking of the general opinion upon the subject, and the suppositional freedom of refusal, Mr. Seymour goes on.

All this applies only or chiefly to the novice, to whom the opportunity is nominally offered of withdrawing if she wishes. The truth is, that she dare not accept this nominal offer, however much or anxiously she may wish it. The feelings of her own family, and the state of public feeling, impose an insuperable obstacle to her fulfilling her desires; and she passively resigns herself to her hard fate. It is not that she finds her noviciate a happy spring-time, as some have imagined; nor is it that the other nuns, though naturally anxious for some new companion to lighten the dull monotony of the cloister, weave all their arts to fascinate and ensnare the novice; it is not this that impels and precipitates the fatal step, but it is the impossibility of overcoming the obstacles arising from the feelings of her family, and the tone of public feeling on the subject. If her parents oppose her wishes, she has no alternative but to take the final plunge, unless, indeed, she can depend on the honor and love of some

man who may have won her affections, and who will open to her a home, and secure to her protection. A curious instance of this kind occurred at Rome, and was narrated to us by a general officer who was present at the time. A young lady was destined by her parents to the cloister. She had regarded herself as the wife of one to whom she was much attached. The parents, not approving this marriage, placed her, as is usual in such cases, in a monastery, where she could never see him; and she commenced her noviciate. Before doing so, however, the young gentleman found means to communicate to her that he would attend in the church, at the conclusion of her noviciate; and that, if she still loved him, and preferred marriage with him to the taking the veil, he would be there to claim her, and give her the home and protection which her own family would deny her. The year rolled slowly away; the noviciate had ended. The *profession* was publicly announced; the bells rang merrily as for a bridal; the first flowers of spring were blooming on the floor of the monastic chapel. The cardinal had arrived; the young novice, fair as the young moon in May, knelt with her white veil floating behind her, and her eye glancing eagerly from face to face, in the assembly, till it rested on him, whom for that long and sad noviciate she had never seen, and whose presence, at this moment, assured her of his faithfulness in the past. The service proceeded till the cardinal asked the usual question as to her willingness for the life of a cloister. She at once declared her unwillingness. The cardinal was astounded. The assembly was greatly excited. And, on her being again asked for her reasons, she pointed to the young man who was present, and said, boldly—"My wish is to be married to that gentleman." She was, the next instant, on her knees to the cardinal, beseeching him to forgive her, and to permit the marriage. The feelings of the cardinal, and all the assembly, were deeply moved. The service ceased. The cardinal declared that she must not be received into the sisterhood, as she had herself refused her consent. He made inquiry, and, in the end, himself married the young couple. And thus she found, at once, the home and protection she required, and the want of which would otherwise have consigned her, against her own wishes, to the cloister forever. This, however, is a scene that cannot be of frequent occurrence.

From the Spectator.

#### ROBERT CHAMBERS' ANCIENT SEA-MARGINS.

ANY one in the slightest degree acquainted with geology is aware of the opinion, received as an axiom, that the earth's surface has been elevated, either by sudden violence or gradual upheaving. Internal commotions by volcanic agency are assumed to be the violent *modus operandi*; visible evidence of which is seen along the range of the Andes and in many other places; while more inferential proof is found in the breaks and intermixture of strata, and the confusion worse confounded of some mountainous regions. The quieter upheaving of the land cannot be made so palpable to observation as the rapid effects of volcanic eruption, nor is it so visible in its effects. Some tradition, or accidental mark of olden times, or continued observation under favorable circumstances, alone fur-



nishes direct evidence; and this is obtainable in several places, especially on the shores of the Baltic. That very high lands have formerly been submerged, is proved by the presence of marine remains, and by appearances which geologists universally admit to bear marks of the action of water. In some cases the regularity both of surface and of level is so exact, that a *violent* upheaving seems out of the question. The inference, therefore, is, that the uprising has been gradual; that the plains and terraces, wearing all the appearance of having formerly been beaches or sea-margins at heights varying from twenty or thirty to a thousand feet above the present level of the ocean, have been gradually raised at different intervals, except in a few instances where it is an unsettled point whether the effects may not have been caused by fresh-water lakes.

From the all but universal opinion of geologists Mr. Chambers dissents; he considers that the land has not risen, but that the sea has sunk. This theory or hypothesis has been forced upon him by long observation on a variety of "ancient sea-margins," that appear to him to render his conclusion irrefragable. Having once conceived the idea, he endeavored to establish it by as extensive a collection of facts as he could meet with in nature or books; by conferences with geologists, though he appears to have convinced but very few; and in a paper read last year on the subject before the British Association at Oxford. He has now expanded that paper in the volume before us; which presents his general views upon the question, with the evidence by which he supports them. This last consists of observations made by the author in many places throughout Great Britain; of a rapid survey of the valley of the Seine as high as Paris; and a casual inspection of parts of Ireland. To these observations are added a variety of measurements from geological writers relating to America and the North of Europe.

It may be premised, we think, at starting, that the facts of Mr. Chambers are hardly numerous enough, and do not always appear to have been made with a precision sufficiently exact, to establish his premises. With this qualification, the argument may be broadly stated thus:—"Throughout Great Britain various terraces are found which were evidently salt-water tidal beaches—"ancient sea-margins." They vary in height, from the flats that in many places border the sea-coasts and the shores of our rivers, up to 1,338 feet above the sea at Ben Lomond. The fact of their existence is well known, and the heights of many of them are ascertained as isolated measurements; but if these heights be taken and compared together, it will be found that they correspond throughout; if some of the more numerous examples were drawn out, or formed into a model, these differently situated "sea-margins" would exhibit a series of equal tidal lines all round Great Britain. If we proceed to Paris, and thence down the valley of Seine, we find a correspondence in the heights to those which we have already found in Great Britain. In Ireland

the result is the same so far as Mr. Chambers has gone. In the North of Europe, especially Norway, the measurements recorded by other geologists exhibit a similar uniformity with those already alluded to. The same correspondence is found in North America.

I find that a tendency to a bench form or plateau, at 60, or from 60 to 70, feet above present high water, exists on the coasts of the United States and in the Gulf of St. Lawrence, as it does in Britain; that conspicuous terraces in Britain and in France at 188 and 392 feet, are repeated in America; that there also, at about 545 feet, are several repetitions of a decided and most notable Scottish terrace; that Scott built his house of Abbotsford on an ancient sea-beach beside the Tweed, which finds an analogue in the first of the grand ridges sweeping from east to west behind Toronto; and that the sandy plateaux of Lanark and Carstairs are in metrical harmony with the terraces and ridges of the half-peopled wilds of Michigan. Even so high as between 900 and 1,000 feet above the present sea, there is a parity; and we can hardly say anything but a parity, when the fact is that the only two ancient American sea-levels given for that space stand in the following apposition to the Scottish markings within the same space—

Ontario terraces.	Scottish terraces: various districts.
O. 996	966 . . . 999
	958-69
L. 914	937-8
	907-14

It seems scarcely admissible that accident can have ruled these conformities, arrived at by observers in no correspondence with each other. And perhaps even a more perfect uniformity in the Scottish series might have been attained, if a severe mode of measurement had been more generally attainable.

From these facts Mr. Chambers deduces the truth of his theory. And it is certainly more easy to conceive a successive falling of the sea-level from the engulfment of a portion of the earth—as, for example, the traditionary Atlantis—than a uniform series of uprisings so gradual as to exhibit a perfectly level face, and no breaks in the beaches but what are accounted for by accidents or washings of water. The subsidence of the ocean is, no doubt, the easiest to our comprehensions, and the most familiar to our experience; the principle is daily illustrated in a cask of beer. Any one could manage it on a model. By having a tap in the bottom of his mimic sea, he could readily enact the hypothetical processes of Mr. Chambers; whereas only a very complicated machinery could imitate the received opinion of the actual uprising of successive plains or terraces. In nature, however, the uniform levels of these heights would be at once attained by a uniform force acting over a sufficient extent; and we must not limit such large and wonderful operations as were carried on countless ages ago, by our notions of what is the easiest.

The volume consists of two portions; the one exhibiting the writer's general views, and the arguments by which he supports them; the other embracing a detailed account of his surveys and examinations of different localities in Great Britain,



France, and Ireland. The former are broad and interesting; the latter, though necessary as proofs, are rather dry and detailed, save to a geologist earnest in the question; or interested by the account of the facts apart from the hypothesis; or possibly acquainted with the places, which always gives zest to a description by recalling the original, and realizing by this process a living idea. In his local surveys, however, Mr. Chambers throws in occasional and passing sketches or traditions, which impart some life to the geologist's "specification." But the general part is the broadest even in its particular facts. The following is curious, though of little proof. Such changes of the sea have taken place within the historic age of this country—at the isle of Sheppey, for example.

In 1819, in digging the carse land at Airthrey, near Stirling, where the surface is nearly twenty-five feet above high water of spring-tides in the river, which flows at a mile's distance, there were found the bones of a large whale. No doubt can be entertained that this animal had perished here at a time when the sea stood at some unknown point upwards of twenty-five feet above its present level. About five years afterwards, the bones of another large whale were found on the estate of Blair-Drummond, seven miles further up the carse, and probably at a greater elevation above the sea. In this case, a deep moss had covered the ground, indicating one long section of the interval of time since the death and deposition of the animal. The clay was here only four feet deep, and beneath it was *another moss*; the memorial, of course, of an interspace, during which dry land had existed at this spot. The bones rested on the lower moss, but did not penetrate into it. We may suppose, therefore, that it was immediately after the sea recurred here that the whale was brought to the spot. But the most valuable fact in connection with these relics is, that in each case there was found among the bones a fragment of stag's-horn, containing a perforation of an inch in diameter, evidently artificial, and, in the Blair-Drummond instance, containing the remains of rotten wood. It was the opinion of Mr. Home Drummond, on whose property the latter whale was found, that this horn had been the handle of a rude instrument, perhaps a harpoon, and that it had been used in some way in connection with the animal when it was stranded. The purport of these facts and inferences evidently is, that a human population existed in the land before some of the last shifts of the sea-level. I am moreover told that a human skull was found deeply imbedded in the carse clay at Grangemouth, when digging for the formation of a dock, at a place where recently a garden had flourished. The question must be left, however, to be determined by further evidence.

#### FRENCH SKETCHES OF THE LAST NAVAL WAR.\*

THIS interesting combination of sagacious criticism with graphic description was originally published as a series of articles in the *Revue des Deux Mondes*. Its prompting cause was Sir Harris Nicolas' collection of the *Nelson Despatches*. Not that they form the prominent subject of the

"Sketches," or that the substance of the book consists of materials chiefly drawn from the Nelson Correspondence; for Captain de la Gravière brings much original knowledge and the results of a careful study of French and British history to his undertaking; but the "*monumentum ære perennius*" which Sir Harris has erected to the great naval hero suggested the idea of the work, and perhaps furnished the means by which Captain de la Gravière's leading object was to be developed.

The leading object was to examine the causes of the *annihilating* defeats which the French and Spanish marine suffered during the last war when opposed to nominally inferior forces, notwithstanding the acknowledged chivalry of the officers, and the enduring courage of the men, that sometimes disdained to surrender a sinking vessel or ship on fire, and frequently did not strike till the principal officers were killed, and the decks were like a slaughter-house. This has been attributed by popular opinion both in England and France to the natural inaptitude of Frenchmen for the sea, compared with their rivals; but Captain de la Gravière maintains that such cannot be the case, by referring to the results of naval battles before the revolution, which were sometimes nearly equal, and never ended in such disastrous consequences as the Nile and Trafalgar—though St. Vincent, and Rodney's victory over De Grasse, if not over Langara, should, we think, be exempted from this remark. The naval defeats under the republic, and the *annihilation* of the French navy under the empire, were not owing to any deficiency in personal courage, theoretical acquirement, or national aptitude; but to loose discipline, want of practical experience, and bad gunnery. The revolution had, by the guillotine or banishment, broken up the band of naval officers formed under the old régime; and the extreme principles of "liberty, fraternity, and equality," then in vogue, were totally repugnant to that order and submission which are essential to the naval service.

It would indeed have been folly to expect that at a time when all the social ties were relaxed elsewhere, respect for superior rank, and passive obedience, the only possible foundations of discipline, should be maintained in our ships. The crews of the ships anchored in Quiberon Bay first set the example of those dangerous mutinies which were more than once renewed on board the ships of the republic. They obliged Admiral Morard de Galles to bring back the fleet to Brest; and were not reduced to order until a part of the mutineers had been sent to the army and replaced by levies of fishermen and conscripts. The loss of these old seamen was even less regrettable than that of the officers who, under D'Estaing, Guichen, Suffren, and D'Orvilliers, had learned to manœuvre ships and command squadrons. Those who did not emigrate of these officers were guillotined. And that navy, so glorious, so devoted, so redoubtable to the enemies of France, seemed to disappear in a single year of terror. That which a regular government would not have succeeded in, a new government, obliged to face all Europe, had to undertake. Struggling against civil war, famine, and disorganization, it had also to repair the enormous breach through which the

\* Sketches of the Last Naval War. Translated from the French of Captain E. Jurien de la Gravière, by the Hon. Captain Plunkett, R. N., Author of "The Past and Future of the British Navy."

enemy was about to enter, and to raise from the lowest rank in the fleet, officers and commanders for these deserted ships now become useless. At the same time, the war was active and pressing: to supply the people, it was necessary to secure the convoy of corn expected from America. The cause of the revolution required that French squadrons should keep the sea; and it was necessary, with the rapidity of that period, to extemporize the very thing which requires most time and method, which least brooks precipitation and disorder—a well-organized navy.

The convention never hesitated: it hurried to sea squadrons with inexperienced officers and undisciplined crews; it decreed activity in our arsenals and heroism in our ships, as it decreed victory on the frontiers.

When, at the downfall of Robespierre and the establishment of the Directory, some of the old officers were restored, the government was addressed on the state of the navy, and remedies were suggested.

But how should these prudent counsels, (says Captain de la Gravière,) excite the attention of republicans, who were more occupied with the traditions and relics of Rome and Greece than with the glorious ones of their own ancestors? It was a period when presumptuous innovators talked seriously of *restoring the oar to its former importance*, and throwing *flying-bridges* on to the British ships, as was done in the Carthaginian war. These honest visionaries, with Greek naïveté, expressed the objects of their mission in some of those absurd preambles still preserved in the archives of the navy, like the following: "Legislators, here are the suggestions of an ingenious patriot, who is guided by no other principle than that of nature and a heart truly French."

The popular clubs believed that it was sufficient for a man to have been some time at sea to constitute him a seaman, provided he was a patriot; and did not reflect that patriotism alone will not navigate a ship. They therefore made officers of men who had no more claim than the fact of having been long at sea, without considering that such men were little better than useless. Besides, the whole system of these men was thrown out at the first unforeseen emergency: nor was it always, it must be owned, the best qualified or the most patriotic who obtained the suffrages of these clubs; but often the most false and intriguing—such as by impudence and volubility had contrived to obtain a majority. A worse error even was fallen into; for, upon a show of activity such as is common to the effervescence of youth, they gave naval rank to young men, without knowledge, without talent, without experience, and without an examination.

The genius and energy of Napoleon might sweep away the effects of ideas such as these, but it could not give practical skill to officers or seamen, or supply the want of exercise even in veterans. Cooped up in port under the system of blockades, the French marine was incapable of contending with a storm, like the British sailors who were blockading them in all seasons. "The Toulon squadron," wrote the unfortunate Ville-neuve, after having been driven back by a storm in the year of the battle of Trafalgar, "looked very well at anchor, with the crews well dressed and

going through their exercise well; but when the storm came things were very different; *they were not exercised for storms*. The few sailors, mixed up with the soldiers, were no longer to be found; while the latter could not stand on the decks, and only encumbered them. It was impossible to work the ship; and hence the yards carried away and the sails split; for in all the damages incurred there was as much clumsiness and inexperience as defectiveness in the articles supplied by the dock-yards." Such, says Captain de la Gravière, in commenting on the extract, were the scenes of confusion which often marked the commencement of any expedition by our squadrons. The gunnery, from want of practice in the rolling ocean, was equally defective: a view also advanced by some English writers. Sir Howard Douglas, in his *Naval Gunnery*, says that a whole French broadside has not done more damage than would two guns properly fired. A depressing moral evil originated in these personal and material disadvantages. The French navy became accustomed to wage a war of avoidance. "Too often our squadrons," says Captain de la Gravière, "left a port with some special mission to execute, and with the intention of avoiding the enemy: to meet him, therefore, came to be regarded as a contretemps. It was thus that our ships commenced an action; they rather accepted it from the enemy than forced it upon him."

During this decline both moral and material in the French marine, an improvement had taken place in the British, over and above the great advantage arising from continual exercise in all climates at all seasons, with the stimulus of success. While the old discipline of the French navy was destroyed by the ideas of the revolution, that of the British was reformed, improved, and carried to the very highest pitch of excellence, by St. Vincent. At the same time, too, arose a man exactly suited to the crisis, and capable of taking advantage of the perfection to which the British navy had been brought, by hurling its perfect force at the inferior condition of the French and Spanish ships. That man was Nelson. Impetuous and daring by nature, thoroughly versed in his profession from the most extensive combination to the minutest details—to which last he paid the profoundest attention, he saw at once the deficiency of the French marine, and discarding the old cautious system of tactics that had been continued by the British admirals at the commencement of the revolutionary war, he threw himself almost recklessly upon his enemy, without regard to nominal superiority, satisfied that with his crews and his gunnery the disparity of numbers was not real. Had the French navy been better disciplined and better trained, these tactics of Nelson would have been too hazardous to adopt; because to bear down upon a fleet at right angles, or to throw a few leading ships upon the enemy without regard to the time when the others might come into action, would involve the destruction of the leading vessels and the defeat of the armament. Hence, the

French moral deducible from Nelson's professional life is not to imitate his tactics, but his preparations.

The battles of Aboukir and Trafalgar have overturned the olden ideas of naval tactics. Have they substituted rules of an infallible strategy, a strategy which it is the interest of our admirals to study? There are, doubtless, circumstances wherein they might profit by those daring examples. But those tactics, we think it has been sufficiently proved, can only be used by the strong against the weak—by veteran against unpractised navies; and it is not against such that we have to prepare: it is against an enemy who remembers the lessons of Nelson, and will be ready to practise them again if we can only oppose him with a new order of battle, instead of with better squadrons. The last war presents subjects more worthy of our study than tactics. The English did not owe their triumphs to the number of their ships, to the greatness of their maritime population, to administrative wisdom, nor the wise combinations of the Admiralty. The English beat us because their crews were better trained and their squadrons better disciplined than ours. That superiority was the fruits of some years' cruising, and was the work of Jervis and of Nelson. It is the secret mechanism of that silent and gradual work which we must investigate; for we must study Nelson organizing his fleet ere we can understand him fighting with such successful rashness; we must examine the means before we can comprehend the end.

The things which Nelson attempted with his ships during his remarkable career, the risks and perils to which he exposed them in his adventurous Odyssey, will strike every seaman with astonishment. Not to speak of Aboukir Bay, into which he led his squadron at sunset, with no other guide than a wretched sketch found in a French merchant-ship—without recalling his perilous expedition in the Baltic—where is there an officer who will not admire his last cruise in the Mediterranean, wherein he conducted his fleet, and that old Victory, accustomed to more careful treatment, through unknown passages, which even in the present day appear impracticable for such ships? There were no difficulties of navigation which, in such a school, the English did not learn to surmount. Such is, in part, the secret of those persevering cruises which even in the depth of winter kept our ports blockaded and our shores alarmed. Such is the best explanation of those rapid movements which disconcerted our projects, those unforeseen concentrations by which the English squadrons seemed to be multiplied over the face of the globe.

That which we may most profitably study in Nelson, that man of such prodigious energy as well as such uncommon valor, is still more his nautical activity than his military daring. It is by taking this view that we recognize all the importance of that collection (Nelson's Despatches) which has served as the basis of our work. That monument which has been raised with religious care to the hero of England is also an historical monument. These semi-official despatches, these unstudied effusions, affording unquestionable proofs of the ardent love of the service, the professional enthusiasm which distinguished Nelson above all his rivals, transport us into the heart of the enemy's camp, and enable us at this day to enter the tent of Achilles. For our own part, we rejoice to say that we

return from this excursion more tranquilized as to the future, more assured, even by our reverses during the last war, since they neither arose from the character of our population nor from the nature of things, but from the temporary inferiority which circumstances had imposed upon us.

This outline has been confined to an exhibition of the leading object of Captain de la Gravière, because it contains a warning as important to England as to France in its indications of the paramount necessity of exercise, exercise, exercise to a fleet, (for Mr. Cobden had some reason in his comments on "harbor-work," had his animus been less malignant,) and the prudence of keeping an eye upon the nautical preparations of our neighbors. A critical exposition of the principles of discipline, tactics, and naval battles, though a very considerable part of Captain de la Gravière's work, is not, however, by any means, the sole or even the principal portion of it. Historical and biographical sketches are the main staple of the book; in form it is a life of Nelson, of somewhat irregular plan, but not less adapted from that circumstance to the scheme of the author—which is to exhibit the principal naval heroes and naval actions that throw light upon Nelson's conduct and career, at a scale in proportion to their influence upon him or connection with him. Thus, Jervis, who greatly assisted to form Nelson and some of his captains as he founded the discipline of the fleets Nelson afterwards commanded, is sketched at considerable length. Villeneuve is also a prominent figure, with several other officers, French, Spanish and English, but each kept subordinate to the main object of the author and the principal person, Nelson. Hence the book combines in rather a rare degree a popular narrative with a critical spirit. It has the further attraction of exhibiting Nelson as regarded by a fair and liberal-minded Frenchman, with a professional knowledge of maritime affairs, and a fuller appreciation of the English character, than commonly falls to the lot of our neighbors. The strength and weaknesses in Nelson's character and conduct are seized, and presented in the main with perfect fairness and justice, though with less tenderness and more freedom than English writers have perhaps exhibited when touching the sore places of the national hero. The narrative also has great literary merits. With the skilful arrangement and the vivacity of manner of his countrymen, Captain de la Gravière has a sobriety of judgment and a rational logic which are less common amongst them.

Captain Plunkett is entitled to thanks for having introduced these *Historical Sketches of the Last Naval War* to the English reader in an English dress, accompanied by notes which occasionally correct the national views of the writer, and sometimes support what might seem heterodox opinions as regards the riskful audacity of Nelson. Its literary merits, and its peculiarity as an unprejudiced French officer's view of our naval history during its most eventful period, would have rendered it at any time a desirable addition to the library; the



circumstances of the time in which it appears give it a practical value. Notwithstanding the fanatical if not factious cry of "Peace, peace!" the danger of war is too imminent for the clamorous to obtain support from the sensible part of the community for reductions obviously weakening. The sounder part of continental society may be opposed to foreign wars for aggrandizement after the old regal fashion; but wars for national objects or for political principles are more palatable; and if the origin of such hostilities be rather better than those of selfish ambition, it is to be feared their practice would be much the same. In point of fact, one half of Europe is at war already, and the other half on the verge of it. Never, perhaps, was it more necessary to be prepared against attack; yet never was the state of the finances more gloomy at a time of such unsettled prospects. The danger seems too near to permit any attempt at reducing the numbers of our forces; but the pressure of the taxgatherer will very likely give rise to a pressure from without, which may induce some penny wise and pound foolish economy in those tools which render men efficient and enable them to work. Incapable economists have no other mode than lopping; whether it is a worthless or a vital branch is matter of accident. Mr. Ward has already promised a reduction of £600,000 in the naval estimates for next year. If this be, as is implied, a cessation of expenditure on the completion of works or vessels now in progress, it is a proper saving. If there is to be any tampering with necessary stores or materials, the temporary gain may give rise to an incalculable loss. These things are out of the public sight; if they are also out of the official mind, the inefficiency of ships or of a fleet will be probable, their total loss possible. Like the want of such trifles as a few mules more or fewer, or a few bundles of straw, which compelled Wellington, unable to bring up his battering train, to retreat from Burgos, insufficient stores after an action may paralyze a fleet, or after a storm be the means of its disgrace should it escape the enemy, or its destruction if compelled to meet him. It was to these seeming trifles that Nelson gave his mind. "The impetuous admiral," says M. de la Gravière, "was more careful of his spars and his sails under ordinary circumstances, than of his ships, or fleet even, upon great occasions." Again and again he writes to this purport.

It is interesting, and at the same time instructive, to see the attention which this great admiral bestowed upon the smallest details that could promote the comfort of his sailors. When the plan of an attack was in question, he contented himself with giving the general idea. "Signals are useless," said he, "amongst people disposed to do their duty; our principal object is to support one another mutually; to close with the enemy, and to keep to leeward of him, that he may not escape us." But when it was a question of the provisions sent to him from Malta, or the clothing of his men, his solicitude was by no means thus easily satisfied. It was necessary to his own satisfaction that he should himself point out the way in which the vegetables,

pork, and beef, were to be tested before they were received and distributed among the crews; and "those flannel shirts, which, being made five or six inches too short," exposed the men to sudden chills, were the subject seriously occupying his mind at the moment when Mr. Frere, the English ambassador at Madrid, wrote him word that he was about to demand his passports and set out for London. "Because," said he, "these shirts, five or six inches longer, would be one of the best things yet introduced into the navy, and would, perhaps, save the lives of more than one good sailor."

**LEYDOYEN'S DISINFECTING FLUID.**—This fluid is the invention of M. Leydoyen, a French chemist. Its efficiency has been tested by parliamentary commissioners appointed for the purpose. They tried its effects on substances in a state of decomposition; on substances about to undergo decomposition; on night-soil; on the impure air of hospitals, and of ill-ventilated places. In some of the experiments the fluid was poured over the substances; in others it was mixed up intimately with them; in others, a cloth, or towel, soaked in the liquid, was waved to and fro in the room containing the vitiated air. It was ascertained that the fluid is a solution of a metallic nitrate, and that its action depends on the decomposition of sulphuretted hydrogen, which is the most offensive of all products of animal decomposition. The commissioners reported generally that for removing the miasmata of sick rooms, the offensive odor of drainage, &c., the fluid was likely to be very valuable; and that so far as sewage refuse is used as agricultural manure, it is improved rather than deteriorated by admixture with the fluid, in consequence of sulphuretted hydrogen being removed, and nitrate of ammonia formed. The fluid has been clearly shown to be *anti-bromic*, that is, capable of removing smell, but it is not yet known whether it is really *disinfecting*, that is, capable of removing infection.

**PHOSPHORESCENCE OF THE SEA.**—Dr. Poeppig, in his voyage to Chili, sailed through about 168 English square miles of this phenomenon; and if we add that the infusoria causing it may have been equally distributed in the upper stratum of water to the depth of six feet, we must confess that their numbers infinitely surpass the conception of the human understanding.

**POWER OF THE ROSSE TELESCOPE.**—Such is the capacity of this instrument, that if a star of the first magnitude were removed to such a distance that its light would be 3,000,000 of years in reaching us, this telescope would, nevertheless, show it to the human eye. The constitution of the nebulae in the constellation of Orion has also been resolved by this instrument; and by its aid, the stars of which it is composed burst upon the sight of man for the first time.

**GREATEST ASCERTAINED DEPTH OF THE OCEAN.**—On the 2d of June, when in latitude 15° 3' south, and longitude 26° 14' west, being nearly calm, and the water quite smooth, (says Sir James C. Ross,) we tried for, but did not obtain, soundings with 4,600 fathoms of line, or 27,600 feet. This is the greatest depth of the ocean that has yet been satisfactorily ascertained; but we have reason to believe that there are many parts of it where it is still deeper. Its determination is a desideratum in terrestrial physics of great interest and importance.—*Voyage to the Southern Seas.*

From the North British Review.

*Physical Geography.* By MARY SOMERVILLE; Authoress of the "Connection of the Physical Sciences," &c. With a portrait. 2 vols., foolscap, 8vo. London, 1848.

EARTH—OCEAN—AIR—with what events, moral and physical—with what sympathies, social and domestic—with what interests, present and future, are these magic words indissolubly associated! When we view, as from afar, our terrestrial ball, wheeling its course round the central sun, and performing, with unerring precision, its daily circuit, we see it but as a single planet of the system—we admire the grandeur of the terra-queous mass; and the mind, in its expanding survey, is soon lost in the abyss of space, and among the infinities, in number and in magnitude, of revolving worlds. But, occupying as we do, a fixed place upon its surface, treading its verdant plains, surveying its purple-lighted hills, gazing upon its interminable expanse of waters, and looking upward to the blue ether which canopies the whole, the imagination quits the contemplation of the universe, and ponders over the mysterious realities around. The chaos, the creation, the deluge, the earthquake, the volcano, and the thunderbolt, press themselves upon our thoughts, and while they mark the physical history of the past, they foreshadow the dreaded convulsions of the future. Associated with our daily interests and fears, and emblazoning, in awful relief, our relation to the Great Being that ordained them, we are summoned to their study by the double motive of a temporal and spiritual interest, and of an inborn and rational curiosity.

When we stand before the magnificent landscape of hill and dale, of glade and forest, of rill and cataract, with its rich foreground at our feet, and its distant horizon on the deep, or on the mountain range, tipped with ice or with fire, the mind reverts to that primeval epoch when the everlasting hills were upheaved from the ocean, when the crust of the earth was laid down and hardened, when its waters were enchanneled in its riven pavement, when its breast was smoothed and chiselled by the diluvian wave, and when its burning entrails burst from their prison-house, and disclosed the fiery secrets of their birth.

When we turn to the peaceful ocean, expanding its glassy mirror to the sun, embosoming, in its dove-like breast, the blue vault above, and holding peaceful communion with its verdant, or its rocky shores, the mind is carried back to that early period when darkness was over the face of the deep, when the waters were gathered into the hollow of the land, and when the broken up fountains of the deep consigned the whole earth, with its living occupants, to a watery grave. But while we thus linger in thought over the ocean picture, thus placid and serene, we are reminded of the mighty influences which it obeys. Dragged over its coral bed by an agency unseen, and stirred to its depths by the raging tempest, the goddess of peace is transformed into a fury—lashing the very heavens with its breakers—bursting the ada-

mantine barriers which confine it—sweeping away the strong-holds of man, and engulfing in its waves the mightiest of his floating bulwarks.

But it is in the pure atmosphere which we breathe, and within the ethereal envelope of our globe, that the most remarkable revolutions must have been effected; and it is in this region, also, that nature presents us, in our own day, with the most fearful contrasts—with the most peaceful repose of the elements, and the most terrific exhibition of their power. The primæval transition from the chaos of the atmosphere to a pure and cloudless sky, must have been the result of frequent and convulsive actions. The exhalations from the green and fermenting earth—the gaseous currents from its heated crust, the empoisoned miasmata from its crevices and pores, and the watery vapors from putrid lake and troubled sea, must have formed an insalubrious compound, which it required the electric stroke to purify and decompose. While there was yet no light on the earth, and the sun and moon were veiled with thick darkness, the "waters above the firmament" must have descended in torrents—the hail-storm must have rushed from the upper air, and the tempest, and the lightning, and the thunderbolt, must have combined their tremendous energies before the rebellious elements were insulated and subdued. In now contemplating the aerial granary which so peacefully surrounds and sustains us, we could scarcely anticipate the character and extent of its abnormal phases. The same powers which were needed for its original distillation, seem to be required to maintain it salubrious and pure; and though these powers are in daily operation, near us and around us, we know them only as destroying agents, and take little interest in the wonderful arrangements which they subserve.

When, on a Sabbath morn, the sounds of busy life are hushed, and all nature seems recumbent in sleep, how deathlike is the repose of the elements—yet how brief and ephemeral is its duration! The zephyr whispers its gentle breathings, the aspen leaf tries to twitter on its stalk, the pulse of the distant waterfall beats with its recurring sound, the howl of the distant forest forewarns us of the breeze that moves it, the mighty tempest supervenes, cutting down its battalions of vegetable life, whirling into the air the dwellings and the defences of man, and dashing the proudest of his war-ships against the ocean cliffs, or sinking them beneath the ocean waves. "When thus awakened from her peaceful trance, nature often summons to the conflict her fiercest powers of destruction. The electric agents—those ministers of fire, which rule so peacefully when resting in equilibrium, and which play so gently in the summer lightning-sheet, or so gayly in the auroral beams—frequently break loose from their bonds, to frighten and destroy. When the heat of summer has drawn up into the atmosphere an excess of moisture, and charged the swollen clouds with conflicting electricities, the dissevered elements rush into violent reünion, and compress, in their fiery embrace, the

vaporous mass which they animate. Torrents of rain, and cataracts of hail, emerge from the explosion, and even stony and metallic meteors rush, in liquid fire, from the scene. The forked lightning-bolt flies, with death on its wing, rending the oak-trunk with its wedge of fire, and transfixing, with its lurid dagger, the stalwart frame of man and of beast; and, before life is extinct, the thunder-clap rolls in funereal echo from cloud to cloud, and from hill to hill, as if a shout were pealed from the cloud of witnesses, in mockery of the helplessness of man, and in triumph over his fall.

A subject embracing topics like these, connected with the past history and the present condition of our globe, must necessarily possess an exciting interest; and it is strange that in our language no separate work has appeared, in which the grand truths of physical geography are illustrated and explained. From our youth we have been accustomed to look at the earth, or its delineations, as mapped into regions, from which the great boundaries of nature are effaced. Empires purchased by blood, and held by force, are, in the political geography with which we are familiar, bounded by chains of custom-houses and barriers of forts. Ambition has replaced the sea-line, and the river, and the mountain range, with frowning battlements, cordons of troops, and rapacious agents—parcelling out the earth into unnatural divisions—forcing its population into jarring communities—severing the ties of language and religion—breaking up into hostile principalities the fatherlands of united hearts—extirpating even the native possessors of the soil, and thus treating intellectual and immortal man as if he were but the property and the tool of the tyrant. Thus founded on the severance of nature's bonds, thus sustained by the suspended sword, thus outlined in blood still crying for vengeance, the geography of conquest, like the quicksands of the ocean, is ever shifting its frontier, ever subject to the inroads of avarice and ambition. Taught us in our youth, taught anew in our manhood, and requiring to be taught again in our old age, it is ever associated with gigantic crime—nationally, with bloody revolutions and desolating wars—individually, with broken hearts and bleeding affections. Did truths like these require confirmation, we have but to look around us at subverted and tottering thrones, at armies routed by popular union, at statesmen precipitated from the helm, and princes driven into exile.

How different is the natural geography of our globe—how permanent in its character—how stable in its boundaries! Gathered into islands, or expanding in continents—sloping to the sea in valleys, or rising in table-lands—washed by the ocean, or bounded by the mountain range, the surface of the earth presents one great phase of durability and permanence, looming to the eye a mighty whole, fresh as when it came from its Maker's hand, and became the abode of his intellectual creation. The destroyer of animal life, the destroyer even of his species, the hand of man has not been able to alter even the expression of one

of the features of the globe, and still less to break one of the smallest bones of its carpentry of adamant. He may have turned a few of its streams from their bed—he may have perforated its hills of rock or of clay, or scratched its yielding surface with his lines of intercommunication; but he has in vain attempted to enchain its ocean, or precipitate even the slenderest of its peaks of granite. There the great globe stands—unchanged by man—such as it was seen by the first of his race, and such as it will be seen by the last—washed, indeed, by the waters of a mighty deluge, but washed only from the impurities of its guilty occupants. In scanning, therefore, the terraqueous wonder, the philosopher takes cognizance only of the handiwork of its Maker. Neither the cloud-capt tower, nor the gorgeous palace, meet the intellectual eye. The din of war and the tumult of contending factions are by him alike unheard. He treads without interruption the grassy savanna, the heath-covered mountain, and the barren desert. He encounters no spot where the human worm claims the perennial right of pursuing its slimy course. He discovers no land under the canopy of heaven where man may not carve a niche for his idol, or rear a temple to his God.

How interesting, then, must it be to study such a structure—the earth, the ocean, and the air combined—to escape altogether from the works and ways of man—to go back to primeval times to learn how its Maker moulded the earth—how he wore down the primitive mass into the strata of its present surface—how he deposited in its bowels the precious materials of civilization—how he filled it with races of living animals, and again buried them in its depths, to chronicle the steps of creative power—how he covered its surface with its fruit-bearing soil, and spread out the waters of the deep as the great highway of nations, to unite into one brotherhood the different races of his creatures, and to bless them by the interchange of their produce and their affections.

Such are some of the lessons which Mrs. Somerville has undertaken to teach us in the very interesting work which we propose to analyze. From the loftier theme of physical astronomy in which she achieved her maiden reputation, and from the wide and rich field of the physical sciences, whose “connection” she traced with a master's hand, Mrs. Somerville has descended to the humbler though not less important subject of natural or physical geography, and we have no doubt, from the popular character of the science, as well as from its relation to our sympathies and interests, that she will command a wider circle of readers, and enjoy the “gratification” so much desired by herself, “of making the laws by which the material world is governed more familiar to her countrywomen.”

Mrs. Somerville's work commences with a preliminary chapter on geology,\* which is intro-

\* In order to preserve the continuity of this article, we have followed Mrs. Somerville, in giving a brief and popular notice of the different formations which compose the

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duced by the following brief and striking notice of the present condition and past history of the earth:—

The increase of temperature with the depth below the surface of the earth, and the tremendous desolations hurled over wide regions by numerous fire-breathing mountains, show that man is removed but a few miles from immense lakes or seas of liquid fire. The very shell on which he stands is unstable under his feet, not only from those temporary convulsions that seem to shake the globe to its centre, but from a slow, almost imperceptible elevation in some places, and an equally gentle subsidence in others, as if the internal molten matter were subject to secular tides, now heaving and now ebbing, or that the subjacent rocks were in one place expanded and in another contracted by changes of temperature.

The earthquake and the torrent—the august and terrible ministers of Almighty power—have torn the solid earth, and opened the seals of the most ancient records of creation, written in indelible characters on “the perpetual hills, and the everlasting mountains.” There we read of the changes that have brought the rude mass to its present fair state, and of the myriads of beings that have appeared on this mortal stage, have fulfilled their destinies, and have been swept from existence to make way for new races which, in their turn, have vanished from the scene till the creation of man completed the glorious work. Who shall define the periods of those mornings and evenings when God saw that his work was good? and who shall declare the time allotted to the human race, when the generations of the most insignificant insect existed for unnumbered ages? Yet man is also to vanish in the ever-changing course of events. The earth is to be burnt up, and the elements are to melt with fervent heat—to be again reduced to chaos—possibly to be renovated and adorned for other races of beings. These stupendous changes may be but cycles in those great laws of the universe, where all is variable but the laws themselves and He who has ordained them.—Pp. 2, 3.

The various substances which compose the earth exist either in shapeless masses, or in regular strata horizontal, or inclined to the horizon. Our knowledge of these substances extends but to a small depth beneath the surface; but from the thickness and extent of the stratified masses, geologists have obtained a pretty accurate idea of the earth's structure to the depth of about ten miles. The earth's crust consists of plutonic and volcanic rocks of igneous origin, of aqueous or stratified rocks, deposited by water, and of metamorphic rocks also deposited by water, but subsequently crystallized by heat. The *plutonic* rocks, namely, the granites and some of the porphyries, on which no fossil remains are found, were formed under high pressure in the earth's deepest caverns, and subsequently upheaved into mountain peaks by the central forces, or injected in a fluid state into the fissures of the overlying strata, or even into the crevices of a more ancient granite. *Volcanic* rocks, such as basalt, greenstone, porphyry, and serpentine, differ widely from the plutonic ones in their nature and position. They contain no fossil remains, and are generally found near the surface of the earth, consisting of the different kinds of strata fused by the internal fire, and exhibiting much variety in their appearance and structure, owing to the melted matter having been cooled under different conditions in contact with the atmosphere.

There seems, (says Mrs. Somerville,) scarcely to have been any age of the world in which volcanic eruptions have not taken place in some part of the globe. Lava has pierced through every description of rocks, spread over the surface of those existing at the time, filled their crevices, and flowed between their strata. Ever changing its place of action, it has burst out at the bottom of the sea as well as on dry land. Enormous quantities of scoriae and ashes have been ejected from numberless craters, and have formed extensive deposits in the sea, in lakes, and on land, in which are imbedded the remains of the animals and vegetables of the epoch. Some of these deposits have become hard rock, others remain in a crumbling state; and as they alternate with the aqueous strata of almost every period, they contain the fossils of all the geological epochs, chiefly fresh and salt water testacea.—P. 5.

The metamorphic rocks, according to Mr. Lyell, consisting of gneiss, mica slate, clay slate, and statuary marble, &c., have been deposited in regular sedimentary beds, near the plutonic rocks, by the heat of which they have been greatly altered, and subsequently crystallized in cooling, without losing their character of stratified deposits. Those rocks which contain no organic remains sometimes lie in horizontal beds, but are generally inclined at all angles, and form some of our highest mountains and table-lands.

The aqueous or stratified rocks have been all formed at the bottom of seas and lakes, by the debris of the land, carried into them by streams and rivers. They consist chiefly of sandstone or clayey rocks, and of calcareous rocks, composed of sand, clay, and carbonate of lime. Indurated by internal heat, and subsequently elevated by internal forces, the aqueous rocks form three great classes, which, commencing from below, have been named, the *primary* and *secondary fossiliferous* formation, and the *tertiary* formation.

The *primary* formation, consisting of limestones, sandstones, and shales, still distinctly marked by the ripples of the wave, have been deposited at the bottom of a very deep ocean, and contain only the remains of marine animals. They have been subdivided into the Cambrian, and the lower and upper Silurian systems. There are no organic remains in the Cambrian rocks, which are sometimes many thousand yards thick, but they abound in the Silurian system, increasing as we ascend in the series. Shell-fish, and crinoidea or stone lilies, trilobites, and sometimes true fishes, are found in the lower series; and in the upper, sea-shells of every order, with crinoidea, corals, sea-weeds, a few land plants, and sauroid fishes, the principal vertebrated animals that occur in these early formations. While the Silurian rocks were being

deposited, the northern hemisphere of our globe was under water. Lands and islands had begun to emerge from it, and earthquakes and volcanoes, insular and submarine, marked the close of the period.

During the great geological period which succeeded, the *secondary* fossiliferous strata, forming the present High Land of Europe, were deposited at the bottom of a sea, by the streams and rivers which entered it. This interesting series consists, reckoning upwards, of the *devonian* or *old red sandstone* rocks, the *carboniferous* or *coal* strata, the *permian* or *magnesian* limestone rocks, the *triassic* or *new red sandstone* rocks, the *jurassic* or *oolite* rocks, and the *cretaceous* strata.

The *devonian* rocks, sometimes 10,000 feet thick, consist of dark red and other sandstone, marls, coralline, limestones, conglomerates, &c., contain saurid fishes of gigantic size, and others, some with osseous shields, and some with wing-like appendages.

During a long period of great tranquillity, which followed the deposition of the *Devonian* rocks, tropical forests, and jungles of exuberant growth, covered the lands and islands which had sprung from the deep. Submerged by inroads of the sea, or carried down by land-floods, the plants of that period were deposited in estuaries, with the sand and mud which accompanied them, and formed the *carboniferous* strata which lie above the *Devonian* rocks.

The *carboniferous* system is composed of countless layers of various substances, filled with an enormous quantity of fossil land plants, intermixed with beds of coal. Upwards of 300 fossil plants have been collected, with their seeds and fruits, among which ferns, some of which have been 40 or 50 feet high, predominate. Huge forest trees—the pine and the fir—*quisetaceous* plants of gigantic magnitude, and tropical club mosses, occur in the shale. In the mountain limestone of this group, which is sometimes 900 feet thick, *crinoidea*, marine testacea, and corals, are found in abundance. The strata of coal had been greatly disturbed by the earthquakes which prevailed during this period.

The *permian* rocks or *magnesian* limestone, which overlies the coal measures, consist of conglomerates, gypsum, sandstone, marl, &c.; but its leading feature is a yellow limestone rock, called *dolomite* when granular, and containing carbonate of magnesia. The earlier Flora and Fauna begin to disappear, and peculiar ones take their place. Two species of saurian reptiles mark a new creation of animal life.

The *triassic*, or *new red sandstone* system, consists of red marls, rock-salt, and sandstones, produced by the disintegration of metamorphic slate and porphyritic trap. This formation is in England singularly rich in *rock-salt*, which, with beds of gypsum and marl, is sometimes 600 feet thick. The *musselkalk*, a member of this series, and full of organic remains, is wanting in England, but exists in Germany. Gigantic *frogs* have left their foot-prints on the rocks, and no fewer than 47

genera of fossils, shells, cartilaginous fish, *encrinurites*, &c., have been found in the German trias.

The *jurassic* or *oolite* rocks—sands, sandstones, marls, clays, and limestones, were deposited in a sea of variable depth, during a long period of tranquillity. The European ocean deposited beds consisting almost wholly of marine shells and corals:—*Belemnites* and *ammonites*, from an inch in size to that of a cart-wheel, were entombed in myriads—forests of *crinoidea* flourished on the surface of the oolite, and *encrinurites* in millions were embedded in the *enchoreal* shell marble, which forms such extensive tracks throughout Europe. Not one of the fossil fish, which are numerous, exist at the present day. Ferns, cycadeæ, and the *pandanus* or screw-pine, occur in this formation.

The new lands, (says Mrs. Somerville,) that were scattered in the ocean of the oolitic period were drained by rivers, and inhabited by huge crocodiles and saurian reptiles of gigantic size, mostly of extinct genera. The crocodiles came nearest to modern reptiles, but the others, though bearing a remote similitude in general structure to living forms, were quite anomalous, combining in one the structure of various distinct creatures, and so monstrous that they must have been more like the visions of a troubled dream than things of real existence; yet in organization a few of them came nearer to the type of living mammalia than any existing reptiles do. Some of these saurians had lived in the water, others were amphibious, and the various species of one genus even had wings like a bat, and fed on insects. There were both herbivorous and predaceous saurians, and from their size and strength they must have been formidable enemies. Besides, the numbers deposited are so great that they must have swarmed for ages in the estuaries and shallow seas of the period, especially in the *lias*, a marine stratum of clay the lowest of the oolite series. They gradually declined towards the end of the secondary fossiliferous epoch, but as a class they lived in all subsequent eras, and still exist in tropical countries, although the species are very different from their ancient congeners. Tortoises of various kinds were contemporary with the saurians, also a family that still exists. In the *Stonefield* slate, a stratum of the lower oolitic group, there are the remains of insects; and the bones of two small quadrupeds have been found there belonging to the marsupial tribe, such as the opossum; a very remarkable circumstance, because that family of animals at the present time is confined to New Holland, South America, and as far north as Pennsylvania at least. The great changes in animal life during this period were indications of the successive alterations that had taken place on the earth's surface.—Pp. 15, 16.

The *cretaceous* formation, consisting of clay, green and iron sands, blue limestone, and *chalk*, derives its name from the predominance of the last substance in England and other countries, though it is actually wanting in some localities where the other strata occur. The *Wealden* clay, the lowest member of this formation, is of fresh water origin, and contains the *Portland* fossil forest, with ferns and *Auracarian* pines, and plants allied to the tropical *zamias* and cycadeæ. Tortoises and saurians swarmed in its lakes and estuaries, and fish and wading birds also occur in the *Wealden* clay.

The chalk above it abounds in marine fossils, turtles, corals, and marine shells. The colossal saurians are few in number, but a gigantic animal between the living Monitor and Iguana, lived at this time.

Old things were now passing away, and all things becoming new. We approach things as they are. Old life is extinct as if by a magic stroke, and new life springs up around us. The great features of the earth are blocked out. The master-hand is now at work, to lay on the drapery, and to bring out the permanent expression of his handiwork. The *tertiary* strata were deposited in the basins and hollows of the previously existing crust of the globe, and though frequently of enormous thickness and extent, they occur in irregular tracts. The Eocene, Miocene, and the Pleiocene\* groups of this formation, containing shells differing less or more from those which now exist, generally lie horizontally in the localities where they were deposited, though they are frequently found heaved up on the flanks of mountain chains, as on the Alps and Apennines. The gigantic reptiles found in preceding formations had nearly disappeared, and terrestrial mammalia now occupied the land. The remains of marine mammalia have also been found at great elevations in the tertiary formation, and likewise those of extinct species of birds allied to the owl, the buzzard, the quail, and the curlew.† During the tertiary period, the climate passed from a tropical to an arctic one, owing to the additional elevation of the land, and a great part of the continent of Europe was covered by an ocean full of floating ice. Towards the close, however, of the Pleiocene period, the bed of the glacial ocean was upheaved, and the continent of Europe assumed nearly the same form and climate which it now possesses.

The thickness of the fossiliferous strata, (says our author,) up to the end of the tertiary formation, has been estimated at about seven or eight miles; so that the time requisite for their deposition must have been immense. Every river carries down mud, sand, or gravel to the sea; the Ganges brings more than 700,000 cubic feet of mud every hour, the Yellow River in China 2,000,000, and the Mississippi still more; yet, notwithstanding these great deposits, the Italian hydrographer, Manfredi, has estimated that, if the sediment of all the rivers on the globe were spread equally over the bottom of the ocean, it would require 1000 years to raise its bed one foot; so at that rate it would require 3,960,000 years to raise the bed of the ocean alone to a height nearly equal to the thickness of the fossiliferous strata, or seven miles and a half, not taking account of the waste of the coast by the sea itself; but if the whole globe be considered, instead of the bottom of the sea only, the time would be nearly four times as great, even supposing as much alluvium to be deposited uniformly both with regard to time and place, which it never is. Besides, in various places the strata have been more than once carried to the bottom of the ocean, and again raised

above its surface by subterranean fires after many ages, so that the whole period from the beginning of these primary fossiliferous strata to the present day must be great beyond calculation, and only bears comparison with the astronomical cycles, as might naturally be expected, the earth being without doubt of the same antiquity with the other bodies of the solar system. What then shall we say if the time be included which the granitic, metamorphic, and recent series occupied in forming? These great periods of time correspond wonderfully with the gradual increase of animal life and the successive creation and extinction of numberless orders of being, and with the incredible quantity of organic remains buried in the crust of the earth in every country on the face of the globe.

Every great geological change in the nature of the strata was accompanied by the introduction of a new race of beings, and the gradual extinction of those that had previously existed, their structure and habits being no longer fitted for the new circumstances in which these changes had placed them. The change, however, never was abrupt, except at the beginning of the tertiary strata; and it may be observed that, although the mammalia came last, there is no proof of progressive development, for animals and plants of high organization appeared among the earliest of their kind.—Pp. 27, 28.

“Such,” says Mrs. Somerville, in concluding her geological chapter, “is the marvellous history laid open to us on the earth’s surface. Surely it is not the heavens only that declare the glory of God—the earth also proclaims his handiwork.”\*

Having described the formations which compose the superficial envelope of the earth, Mrs. Somerville proceeds to treat of the form of the High Lands of the Great Continent, which embraces Europe, Asia, and Africa—a whole hemisphere nearly of the globe. The dry land in both hemispheres has an area of nearly thirty-eight millions of square miles. No fewer than twenty-four millions are contained in the great continent of the Old World, eleven millions in America, and scarcely three millions in Australia and its islands. Africa is three times, and Asia more than twelve times, larger than Europe. Owing to the number of inland seas, the maritime coast of Europe is greater compared with its size than that of any other quarter of the world. It stretches about seventeen thousand miles from the Straits of Waygatz in the Polar Sea to the Strait of Caffa, at the entrance of the sea of Azoff. The coast of Asia extends to the length of thirty-three thousand miles, and that of Africa to sixteen thousand. The whole continent of America has a sea-line of thirty-one thousand miles. The ratio of the number of linear miles in the coast to that of square miles in the area is, for Europe 164, America 359, Asia 376, and Africa 530.

Referring our readers for an account of the High Lands of the Great Continent to our review of Humboldt’s Researches in Central Asia,† and to our notice of Elie de Beaumont’s “Systems of Moun-

\* North British Review, vol. v., pp. 193, 194.

† Other animals of this and preceding periods have been described in the N. B. Review, vol. i., p. 28, and vol. iii., pp. 510, 513.

\* See Berghaus and Johnston’s *Physical Atlas, Geology*, Plates I., VII., VIII., and X.

† North British Review, vol. v., p. 454.



tain Chains according to their age,"\* we must limit ourselves to a very cursory notice of this part of Mrs. Somerville's work. The Great Continent has taken its general form from a belt of mountains and extensive table-lands, lying between the 38th and 65th parallels of latitude, and stretching from the coasts of Barbary and Portugal to Behring's Straits at the extremity of Asia. An immense plain, nearly on a dead level, lies to the north of this belt, interrupted only by the mountain systems of Scandinavia and Britain, and the low chain of the Urals. The lands to the south of the belt, including the fertile plains between the Indus and the Chinese Sea, and the barren wastes between the Persian Gulf and the foot of the Atlas mountains, are marked with but a few mountain systems of any considerable elevation and extent. The immense mountain zone of the Great Continent commences in the west about the Atlas and Spanish mountains, which must have been once united, raising their granite peaks in Africa to the height of 15,000, and in Spain to 7300 feet. It crosses France at the height of 6000 feet in Auvergne and among the Cevennes, carrying its principal crest to an altitude of 14,000 feet in the Alps, and throwing out, as outlying members, the Apennines, the Calabrian chain, and the mountains of Sicily, Greece, and Southern Turkey. The Alpine range divides itself at the Great Glockner into the two branches of the Noric and the Carnic Alps. The last of these, or the principal branch, separates the Tyrol and Upper Carinthia from the Venetian States, and taking the name of the Julian Alps at Mount Terglou, 10,000 feet high, it joins the eastern Alps at Balkan, the central ridge of which rises at once into a wall 4000 feet high, and "everywhere rent by terrific fissures across the chains and table-lands, so deep and narrow that daylight is almost excluded." In speaking of the Alpine valleys, Mrs. Somerville gives the following notice of the glaciers which they contain:—

It is scarcely possible to estimate the quantity of ice in the Alps; it is said, however, that, independent of the glaciers in the Grisons, there are 1500 square miles of ice in the Alpine range, from eighty to six hundred feet thick. Some glaciers have been permanent and stationary in the Alps time immemorial, while others now occupy ground formerly bearing corn or covered with trees, which the irresistible force of the ice has swept away. These ice rivers, formed on the snow-clad summits of the mountains, fill the hollows and high valleys, hang on the declivities, or descend by their weight through the transverse valleys to the plains, where they are cut short by the increased temperature, and deposit those accumulations of rocks and rubbish, called moraines, which had fallen upon them from the heights above. In the Alps the glaciers move at the rate of from twelve to twenty-five feet annually, and, as in rivers, the motion is most rapid in the centre. They advance or retreat according to the mildness or severity of the season, but they have been subject to cycles of unknown duration. From the moraines, as well as the striae engraven on the

rocks over which they have passed, M. Agassiz has ascertained that the valley of Chamouni was at one time occupied by a glacier that had moved towards the Col di Balme. A moraine 2000 feet above the Rhone at St. Maurice shows that at a remote period glaciers had covered Switzerland to the height of 2155 feet above the Lake of Geneva.

Their increase is now limited by various circumstances—as the mean temperature of the earth, which is always above the freezing point in those latitudes; excessive evaporation; and blasts of hot air, which occur at all heights, in the night as well as in the day, from some unknown cause. They are not peculiar to the Alps, but have been observed, also, on the glaciers of the Andes. Besides, the greater the quantity of snow in the higher Alps, the lower is the glacier forced into the plains.—Pp. 51, 52.\*

Passing over the lofty range of the Caucasus, extending 700 miles between the Black Sea and the Caspian, and rising to the height of nearly 17,796 feet in the Elbrouz; the Russian mountains, whose highest point is 14,600 feet; the great oriental table-land of Thibet and its mountains—as sufficiently described in our article on Central Asia, already referred to—we come to the *fifth* chapter of the work before us, in which Mrs. Somerville treats of the secondary mountain systems of the Great Continent, commencing with the Scandinavian system, which "has been compared to a great wave which, after rising gradually from the east and forming a crest, (8412 feet high,) falls perpendicularly into the sea in the west." This range is 1000 miles long, beginning at Cape Lindesnaes, and ending at Cape Nord Kyn, in the Polar Sea. The southern portion of it is 150 miles broad; and at the distance of 360 miles from Cape Lindesnaes, "the mountain forms a single elevated mass, terminated by a table-land, which maintains an altitude of 4500 feet for 100 miles." A surface of 600 square leagues of this range is occupied by the Snae Braen, *the greatest mass of perpetual snow and glaciers on the continent of Europe*.

As the mountains of Great Britain, Ireland, Faroe, and the north-eastern parts of Iceland, have the same general character and direction as the Scandinavian range, they are supposed to have been elevated at the same time, and by the same forces acting in parallel lines, and have, therefore, been placed in the same system. The Faroe Islands, to the west of Norway, rise immediately into a lofty table-land 2000 feet above the sea, and are bounded by precipitous cliffs. In a zone lying between 55 and 62½° of latitude, including the south of Sweden, the Faroe isles, and the west coast of Greenland, the crust of the earth is *gradually sinking beneath its former level*, while the coast of Norway, from Sölvitsberg northward to Lapland, where the elevation is greatest, is *rising at the rate of four feet in an hundred years!* Mrs. Somerville has given the following interesting notice of the mountains of our own country, as part of the Scandinavian system, but which, we trust,

\* North British Review, vol. vi., p. 250.—See also Berghaus and Johnston's *Physical Atlas*, Plates II., III., V., and VI.

\* See Berghaus and Johnston's *Physical Atlas*, *Geology*, Plate IV.

are neither sinking or rising like some of its other portions.

The rocky islands of Zetland, and those of Orkney, form part of the mountain system of Scotland. The Orkney islands have evidently been separated from the main-land, by the Pentland Firth, where the currents run with prodigious violence. The north-western part of Scotland is a table-land from 1000 to 2000 feet high, which ends abruptly in the sea, covered with heath, peat-mosses, and pasture. The general direction of the Scottish mountains, like those of Scandinavia, is from north-east to south-west, divided by a long line of lakes in the same direction, extending from the Moray Firth completely across the island to south of the island of Mull. Lakes of the most picturesque beauty abound among the Scottish mountains. The Grampian hills, with their offsets and some low ranges, fill the greater part of Scotland north of the Clyde and Forth. Ben Nevis, only 4374 feet above the sea, is the highest hill in the British islands.

The east coast of Scotland is generally bleak, though in many parts it is extremely fertile, and may be cited as a model of good cultivation; and the midland and southern counties are not inferior, either in the quality of the soil or the excellence of the husbandry. To the west, the country is wildly picturesque; the coast of the Atlantic, penetrated by the sea, which is covered with islands, bears a strong resemblance to that of Norway.

There cannot be a doubt that the Hebrides formed part of the main-land, at some remote geological period, since they follow the direction of the mountain system in two parallel lines of rugged and imposing aspect, never exceeding the height of 3200 feet. The undulating country on the borders of Scotland, becomes higher in the west of England and North Wales, where the hills are wild, but the valleys are cultivated like a garden, and the English lake scenery is of the most gentle beauty.

Evergreen Ireland is mostly a mountainous country, and opposes to the Atlantic storms an iron-bound coast of the wildest aspect; but it is rich in arable land and pasture, and it possesses the most picturesque lake-scenery; indeed, fresh water lakes in the mountain valleys, so peculiarly characteristic of the European system, are the great ornaments of the high lands of Britain.

Various parts of the British islands were dry land, while most of the continent of Europe was yet below the ancient ocean. The high land of Lammerrmuir, the Grampian hills in Scotland, and those of Cumberland in England, were raised before the Alps had begun to appear above the waves. In general, all the highest parts of the British mountains are of granite and stratified crystalline rocks. The primary fossiliferous strata are of immense thickness in Cumberland, and in the north of Wales, and the old red sand-stone, many hundred feet thick, stretches from sea to sea along the flanks of the Grampians. The coal-strata are developed on a great scale, in the south of Scotland and the north of England, and examples of every formation, with one exception, are to be found in these islands. Volcanic fires had been very active in early times, and nowhere is the columnar structure more beautifully exhibited, than in Fingal's Cave, and the Storr of Skye, in the Hebrides; and in the north of Ireland, a base of 800 square miles of mica slate, is covered with volcanic rocks, which end, on the coast, in the magnificent columns of the Giant's Causeway.—Pp. 85-87.

Passing over the Uralian Chain and the Great Northern Plain, as sufficiently described in this work,\* we come to the *sixth* chapter, in which Mrs. Somerville treats of the southern low lands of the great continent, with their secondary tablelands and mountains. She describes the empire of China, the Indo-Chinese peninsula, the plains and peninsula of Hindostan, the island of Ceylon, the great Indian desert—about 400 miles broad, the peninsula of Arabia, and the plains and valleys of Syria. On the northern side of the granite ranges of Arabia Felix, where the table-land rises to an altitude of 8000 feet, Mrs. Somerville mentions a track of sand, so extremely loose and fine in its grain, that a plummet was sunk in it, by Baron Wrede, to the depth of 360 feet without reaching the bottom!

Jebel Housa, Mount Sinai, on which Moses received the Ten Commandments, is 9000 feet high, surrounded by higher mountains, which are covered by snow in winter. The group of Sinai is full of springs, and verdant. At its northern extremity lies the desert of el-Teh, seventy miles long and thirty broad, in which the Israelites wandered forty years. It is covered with long ranges of high rock, of most repulsive aspect, rent into deep clefts only a few feet wide, hemmed in by walls of rock, sometimes 1000 feet high, like the deserted streets of a Cyclopean town. The whole of Arabia Petrea—Edom of the sacred writers—presents a scene of appalling desolation, completely fulfilling the denunciation of prophecy.—Pp. 105-106.

The mountains of Lebanon begin at Mount Cauius, which rises in a single peak from the sea, at the mouth of the Orontes, to the height of 7000 feet. Running south, and twenty miles inland, in a chain of peaks which reaches a height of 4300 feet, to the sources of the Jordan, it divides into two parallel branches, bounding the fertile plains of Cælo-Syria, near Beka, which contains the ruins of Balbec, and terminates a few miles north of Ancient Tyre. The Anti-Libanus, beginning at Mount Hermon, 9000 feet high, runs through Palestine till it disappears in the rocky ridges of the Sinai desert. The following description of a region, associated with our highest interests, will be gratifying to the Christian reader:—

The valleys and plains of Syria are full of rich vegetable mould, particularly the plain of Damascus, which is brilliantly verdant, though surrounded by deserts, the barren uniformity of which is relieved, on the east, by the broken columns and ruined temples of Palmyra and Tadmor. The Assyrian wilderness, however, is not everywhere absolutely barren. In the spring-time it is covered with a thin, but vivid verdure, mixed with fragrant aromatic herbs, of very short duration. When these are burnt up, the unbounded plains resume their wonted dreariness. The country, high and low, becomes more barren towards the Holy Land, yet, even here, some of the mountains—as Carmel, Bashan, and Tabor—are luxuriantly wooded, and many valleys are fertile, especially the valley of the Jordan, which has the appearance of pleasure-

\* North British Review, vol. v., pp. 196, 473, and 480.

grounds, with groves of wood, and aromatic plants, but almost in a state of nature. One side of the lake of Galilee is savage; on the other there are gentle hills and wild romantic vales, adorned with palm-trees, olives, and sycamores—a scene of calm solitude and pastoral beauty. Jerusalem stands on a declivity, encompassed by severe stony mountains—wild and desolate. The greater part of Syria is a desert, compared with its ancient state. Mussulman rule has blighted this fair region, once flowing with milk and honey—the land of promise.

Further south, desolation increases; the valleys become narrower, the hills more denuded and rugged, till, south of the Dead Sea, their dreary aspect announces the approach to the desert.

The valley of the Jordan affords the most remarkable instance known, of the depression of the land below the general surface of the globe. This hollow, which extends from the Gulf of Accabah, on the Red Sea, to the bifurcation of Lebanon, is 625 feet below the level of the Mediterranean at the Sea of Galilee; and the acrid waters of the Dead Sea have a depression of 1230 feet. The lowness of the valley had been observed by the Romans, who gave it the descriptive name of *Celo-Syria*, “Hollow Syria.” It is absolutely walled in by mountains, between the Dead Sea and Lebanon, where it is from ten to fifteen miles wide.

A shrinking of the strata must have taken place along this coast of the Mediterranean, from a sudden change of temperature, or perhaps in consequence of some of the internal props giving way, for the valley of the Jordan is not the only instance of a dip of the soil below the sea-level; the small bitter lakes on the Isthmus of Suez, are cavities of the same kind, as well as the Natron lakes on the Libyan desert, west from the delta of the Nile.—Pp. 107–109.

The Continent of Africa, 5000 miles long, forms the subject of Mrs. Somerville's *seventh* chapter, and completes her description of the Great Continent. With the exception of the elevated region of the Atlas Mountains, Africa is divided by the Mountains of the Moon into two parts only, a high country and a low. A table-land, extensive though not elevated, occupies all Southern Africa, reaching the sixth or seventh degree of north latitude. To the north of the Cape the land rises 6000 feet above the sea. The Komri, or Mountains of the Moon, which form the northern boundary of the great plateau, have never yet been seen by any European. It is probable that they are very high, as they supply the perennial sources of the Nile, the Senegambia, and the Niger. They extend south of Abyssinia at one end, and at the other they join the High Land of Senegambia, and pass into the Kong range, which, running for 1200 miles behind Dahomey, terminates in the promontory of Sierra Leone. The Mountains of Abyssinia, and those at the Cape of Good Hope, have granite for their base, which is generally surmounted by vast horizontal beds of sandstone, with limestone, schist, and conglomerate. In Abyssinia the enormous flat masses of sandstone on the mountain tops are accessible only by ladders, or by steps cut in the rock, and are used as state prisons. North of the Mountains of the Moon lies the great desert of Sahara, stretching 800 miles in width

from its southern margin, and 1000 miles long between the Atlantic and the Red Sea. It is a hideous, barren waste, prolonged eastward into the Atlantic for miles, in the form of sand-banks, and interrupted to the west only by a few oases and the valley of the Nile.

This desert, (says Mrs. Somerville,) is alternately scorched by heat and pinched by cold. The wind blows from the east nine months in the year, and at the equinoxes it rushes in a hurricane, driving the sand in clouds before it, producing the darkness of night at midday, and overwhelming caravans of men and animals in common destruction. Then the sand is heaped up in waves ever varying with the blast; even the atmosphere is of sand. The desolation of this dreary waste, boundless to the eye as the ocean, is terrific and sublime—the dry heated air is like a red vapor, the setting sun seems to be a volcanic fire, and at times the burning wind of the desert is the blast of death. There are many salt lakes to the north, and even the springs are of brine; thick incrustations of dazzling salt cover the ground, and the particles carried aloft by whirlwinds, flash in the sun like diamonds. \* \* \* Sand is not the only character of the desert, tracks of gravel and low bare rocks occur at times not less barren and dreary. \* \* \* On these interminable sands and rocks, no animal, no insect, breaks the dread silence, not a tree nor a shrub is to be seen in this land without a shadow. In the glare of noon the air quivers with the heat reflected from the red sand, and in the night it is chilled in a clear sky sparkling under a host of stars. Strangely but beautifully contrasted with these scorched solitudes is the narrow valley of the Nile, threading the desert for 1000 miles in emerald green, with its blue waters foaming in rapids among wild rocks, or quietly spreading in a calm stream amidst fields of corn, and the august monuments of past ages.—Pp. 118–120.

The American Continent, next in extent to that of the Old World, forms the subject of the next *five* chapters of Mrs. Somerville's work. It is 9000 miles in length, and consists of two great peninsulas, united by a narrow isthmus, and has been divided into South, Central, and North America, all connected by the lofty chain of the Andes, rivalling almost the Himalayas in altitude, and stretching along the coast of the Pacific, from within the Arctic to nearly the Antarctic circle. South America is about 4550 miles long, and 2446 miles wide, in its maximum breadth, between Cape Roque on the Atlantic, and Cape Blanco on the Pacific Ocean. “It consists of three mountain systems, separated by the basin of three of the greatest rivers in the world.” The Andes, commencing with the “majestic dark mass of Cape Horn, runs northward along the western coast to the Isthmus of Panama as a single narrow chain, descending on the east to vast plains extending for hundreds of miles in a level as dead and as uninterrupted as that of the ocean. A detached mountain system rises in Brazil between the Rio de la Plata and the Amazons; and between the latter river and the Orinoco, lies the mountain system of Parima and Guiana. The mighty chain of the Andes commences in Terra



del Fuego, a snow-clad mountain 6000 feet high, descending in glaciers to the narrow bays and inlets of the sea. For 1000 miles northward to the fortieth parallel of south latitude, the Pacific washes the very base of the Patagonian Andes." "The coast itself for sixty miles is begirt by walls of rock, which sink into an unfathomable depth, torn by long crevices or fiords similar to those in the Norwegian shore, ending in tremendous glaciers, whose masses falling with a crash like thunder, drive the sea in sweeping breakers through these chasms." Opposite the Chiloe Archipelago four magnificent volcanoes blaze on the Andes, which, on entering Southern Chili, retire from the coast, leaving plains crossed by parallel mountain ranges 2000 or 3000 feet high. The Great Cordillera itself runs in a chain twenty miles broad, with a mean altitude of 12,000 feet. The mountain tops lie nearly horizontally, surmounted at distant intervals by groups of points, or a solitary volcanic cone finely relieved by the clear blue sky. One of these, Descabezado, or "the Beheaded," is 12,102 feet high; and behind Valparaiso, in the centre of a knot of mountains, the magnificent volcano of Aconcagua attains an elevation of 23,000 feet! In central Chili *no rain falls for nine months in the year*. In Southern Chili *rain falls only once in two or three years*. The Peruvian Andes commence about 24° of south latitude. They are separated for 1250 miles from the Pacific by a sandy desert about sixty miles broad, *on which a drop of rain never falls*. At the Nevada of Chorolque, in 21½° of south latitude, the Andes "become a very elevated narrow table-land, or longitudinal Alpine valley, in the direction of the coast, bounded on each side by a parallel row of high mountains rising much above the table-land. These parallel Cordilleras are united at various points by enormous transverse groups or mountain knots, or by single ranges crossing between them like dykes, a structure that prevails to Pasto, in 1° 13' north latitude." There are no transverse valleys in the Andes, excepting a few opposite Patagonia and Chili; "there is not an opening through these mountains in the remainder of their course to the Isthmus of Panama."

The following account of the table-lands of the Andes is extremely interesting:—

Unlike the table-lands of Asia, (says Mrs. Somerville,) of the same elevation, these lofty regions of the Andes yield exuberant crops of every European grain, and have many populous cities enjoying the luxuries of life, with universities, libraries, civil and religious establishments, at altitudes equal to that of the peak of Teneriffe, which is 12,358 feet above the sea level. Villages are placed and mines are wrought at heights little less than the top of Mont Blanc. \* \* \*

The table-land of Desaguadero, one of the most remarkable of these, has an absolute altitude of 13,000 feet, and a breadth varying from 30 to 60 miles; it stretches 500 miles along the top of the Andes, between the transverse mountain-group of Las Lipez, in 20° S. lat., and the enormous mountain-knot of Vilcañata and Cusco, which, extending

from east to west, shuts in the valley on the north, occupying an area three times as large as Switzerland, and rising 8300 feet above the surface of the table-land, from which some idea may be formed of the gigantic scale of the Andes. This table-land or valley is bounded on each side by the two grand chains of the Bolivian Andes; that on the west is the Cordillera of the coast; the range on the east side is the Cordillera Reale. These two rows of mountains lie so near the edge that the whole breadth of the table-land, including both, is only 300 miles. All the snowy peaks of the Cordilleras of the coast, varying from 18,000 to 22,000 feet in absolute height, are either active volcanoes or of volcanic origin, and with the exception of the volcano of Uvinas, they are all situate upon the maritime declivity of the table-land, and not more than 60 miles from the Pacific; consequently the descent is very abrupt. The eastern Cordillera, which begins at the metalliferous mountains of Pasco and Potosi, is not more than 17,000 feet high to the south, and below the level of perpetual snow, but its northern portion contains the three peaked mountains of Sorata, 25,000 feet above the sea, and is one of the most magnificent chains in the Andes. The snowy part begins with the gigantic mass of Illimani, whose serrated ridges, elongated in the direction of the axis of the Andes, rise 24,000 feet above the ocean. The lowest glacier on its southern slope does not come below 16,500 feet, and the valley of Totoral, a mere gulf 18,000 feet deep, in which Vesuvius might stand, comes between Illimani and the Nevada of Tres Cruces, from whence the Cordillera Reale runs northward in a continuous line of snow-clad peaks to the group of Vilcañata and Cusco, which unites it with the Cordilleras of the coast.

The valley or table-land of Desaguadero, occupying 150,000 square miles, has a considerable variety of surface; in the south, throughout the mining district, it is poor and cold. There Potosi, the highest city in the world, stands at an absolute elevation of 13,350 feet, on the declivity of a mountain celebrated for its silver mines, at the height of 16,060 feet. Chiquisaca, the capital of Bolivia, containing 13,000 inhabitants, lies to the south-east of Potosi, in the midst of cultivated fields. The northern part of the valley is populous, and productive in wheat, maize, and other grain; and there is the Lake of Titicaca, twenty times as large as the Lake of Geneva. The islands and shores of this lake still exhibit ruins of gigantic magnitude, monuments of a people more ancient than the Incas. The modern city of La Paz d'Ayacucho, with 40,000 inhabitants, on its southern border, stands in the most sublime situation that can be imagined, having the vast Nevada of Illimani to the north, and the no less magnificent Sorata to the south. The two ranges of the Bolivian Andes in such close approximation, with their smoking cones and serrated ridges, form one of the most august scenes in nature.—Pp. 128–131.

One of the largest and most interesting table-lands in the Andes is that of Quito, 200 miles long, and 30 wide, 10,000 feet above the sea, and flanked by the most magnificent volcanoes and mountains in America. The snow-clad cone of Cayambe is traversed by the equator; and on the summit of Pinchincha, 15,924 feet high, stands the signal cross erected by Bouguer and Condamine, when they were measuring a degree of the meridian,

nearly a hundred years ago. The city of Quito, with a population of 70,000, stands on the side of Pinchincha, at the height of 9000 feet above the sea.

Among the numerous passes over the Chilian Andes, that of Portilla, 14,365 feet high, is the most elevated. The pass from Sorata to the auriferous valley of Tipuani in Bolivia, is reckoned the highest, and about 16,000 feet. The most difficult, though only 11,500 feet high, is that of Quincha in Colombia.

Nothing (says Mrs. Somerville) can surpass the desolation of these elevated regions, where nature has been shaken by terrific convulsions. The dazzling snow fatigues the eye; the huge masses of bald rock, the mural precipices, and the chasms yawning into dark unknown depths, strike the imagination; while the crash of the avalanche, or the rolling thunder of the volcano, startles the ear. In the dead of night, when the sky is clear and the wind hushed, the hollow moaning of the volcanic fire fills the Indian with superstitious dread in the deathlike stillness of these solitudes.

In the very elevated plains in the transverse groups, such as that of Bombon, however pure the sky, the landscape is lurid and colorless; the dark-blue shadows are sharply defined, and from the thinness of the air it is hardly possible to make a just estimate of distance. Changes of weather are sudden and violent; clouds of black vapor arise, and are carried by fierce winds over the barren plains; snow and hail are driven with irresistible impetuosity; and thunder-storms come on, loud and awful, without warning. Notwithstanding the thinness of the air, the crash of the peals is quite appalling, while the lightning runs along the scorched grass, and sometimes, issuing from the ground, destroys a team of mules or a flock of sheep at one flash.

Currents of warm air are occasionally met with on the crest of the Andes—an extraordinary phenomenon in such gelid heights, which is not yet accounted for: they generally occur two hours after sunset, are local and narrow, not exceeding a few fathoms in width; similar to the equally partial blasts of hot air in the Alps. A singular instance, probably of earth-light, occurs in crossing the Andes from Chili to Mendoza: on this rocky scene a peculiar brightness occasionally rests, a kind of indescribable reddish light, which vanishes during the winter rains, and is not perceptible on sunny days. Dr. Pæppig ascribes the phenomenon to the dryness of the air; he was confirmed in his opinion from afterwards observing a similar brightness on the coast of Peru, and it has also been seen in Egypt.—Pp. 137, 138.

We regret that the numerous subjects yet before us will not permit us to follow our authoress any further through these lofty regions of fire and of snow, stumbling over their peaks of granite, threading their hideous gorges, blinded by the smoke of their still smouldering fires, suffocated by the sulphurous vapors from their still burning lungs, or panting under the thin air of their azure summits. Nor can we descend under her intelligent guidance to the no less sublime scenery of its lower regions—to visit the vast Patagonian desert of shingle, extending over 800 miles—to examine

the Pampas of Buenos Ayres, 1000 feet above the sea, and the insalubrious swamps of 1000 square miles at their base, where two millions of cattle were starved between 1830 and 1831, and where millions of animals are destroyed by the conflagration of the dry grass which covers them—to gaze upon the grassy Llanos of Orinoco and Venezuela, covering 153,000 square miles, and so perfectly smooth and level, “that there is not an eminence a foot high in 270 square miles—or to wander among the silvas or forests which cover the basin of the Amazons, extending 1500 miles along the river, with a breadth of from 350 to 800 miles, limiting even its mountain chains, and covering an area six times the size of France. We cannot, however, part with Mrs. Somerville, in this interesting chapter, till we admire her poetical description of this woodland desert:—

A deathlike stillness prevails from sunrise to sunset; then the thousands of animals that inhabit these forests join in one loud discordant roar, not continuous, but in bursts. The beasts seem to be periodically and unanimously roused, by some unknown impulse, till the forest rings in universal uproar. Profound silence prevails at midnight, which is broken at the dawn of morning by another general roar of the wild chorus. Nightingales, too, have their fits of silence and song: after a pause, they

“—— all burst forth in choral minstrelsy,  
As if some sudden gale had swept at once  
A hundred airy harps.”\*

The whole forest often resounds, when the animals, startled from their sleep, scream in terror at the noise made by bands of its inhabitants flying from some night-prowling foe. Their anxiety and terror before a thunder-storm is excessive, and all nature seems to partake in the dread. The tops of the lofty trees rustle ominously, though not a breath of air agitates them; a hollow whistling in the high regions of the atmosphere comes as a warning from the black floating vapor; midnight darkness envelops the ancient forests, which soon after groan and creak with the blast of the hurricane. The gloom is rendered still more hideous by the vivid lightning and the stunning crash of thunder. Even fishes are affected with the general consternation; for in a few minutes the Amazons rages in waves like a stormy sea.—P. 148.

The geology of South America possesses a peculiar interest. There are no fewer than three groups of active volcanoes in this region; the most southern forming a line of volcanic action 800 miles in length, from Patagonia to Central Chili; the second occupying 600 miles of latitude, between Araquipo and Patas; and the third stretching 300 miles between Riobamba and Popayan—the whole line of volcanic action being 1700 miles long. The chain of the Andes has experienced many upheavings and subsidences, especially at its south extremity. “Stems of large trees, which Mr. Darwin found in a fossil state in the Upsallata range—a collateral branch of the Chilian Andes, near 700 miles distant from the Atlantic—exhibit

\* Wordsworth.

a remarkable example of such vicissitudes. These trees, with the volcanic soil on which they had grown, had sunk from the beach to the bottom of a deep ocean, from which, after five alterations of sedimentary deposits and deluges of submarine lava of prodigious thickness, the whole mass was raised up, and now forms the Upsallata chain. Subsequently, by the wearing of streams, the imbedded trunks have been brought into view in a silicified state, projecting from the soil on which they grew—now solid rock."

In the *tenth* chapter our authoress treats of Central America, (including the West India Islands,) a "tortuous strip of land" between 7° and 20° of N. lat., stretching about 1000 miles from S. E. to S. W., and with a variable breadth of from 30 to 300 or 400 miles. The plains of Panama, a little above the sea level, follow the direction of the Isthmus for 280 miles; and from the Bay of Parita, where they terminate, tablelands 3000 feet high, and covered with forests and complicated mountains, extend to the lake of Nicaragua. The plain of Nicaragua, which, with its lake, only 128 feet above the Pacific, and separated from the sea by a line of active volcanoes, occupies 30,000 square miles. The table-land of Guatemala, 5000 feet high, consists of verdant plains of great extent, fragrant with flowers. The city of New Guatemala stands beside the three volcanoes of Pacayo, Del Fuego, and D'Agua, from 7000 to 10,000 feet high, which exhibit "scenes of wonderful boldness and beauty." The volcano of D'Agua, with Old Guatemala at its feet, which it has twice destroyed, is a perfect cone, verdant to its summit, and occasionally ejecting torrents of boiling water and stones. "In a line along the western side of the table-land and the mountains, there is a continued succession of volcanoes, at various distances from the shore, and at various heights on the declivity of the table-land. It seems as if a great crack or fissure had been produced in the earth's surface along the junction of the mountains and the shore, through which the internal fire had found a vent." Between 10° and 20° of N. lat., there are upwards of twenty active volcanoes, some of them higher than the central ridge, and subject to violent eruptions.

The West India Islands, which have been called the Colombian Archipelago, are the wreck of a great convulsion, in which a part of South and Central America, now the Caribbean Sea and the Gulf of Mexico, subsided; while the table-land of Mexico was at the same time upheaved. The period of this subsidence must have been after the destruction of the great quadrupeds, and therefore geologically recent. The line of volcanic islands, beginning with St. Vincent and ending with Guadaloupe, have conical mountains bristled with rugged rocks.

Mrs. Somerville concludes the Physical Geography of America in her *eleventh* and *twelfth* chapters, treating in succession of the table-lands and mountains of Mexico—the Rocky Mountains—the

maritime chains and mountains of Russian America—the great central plain or valley of the Mississippi—the Alleghany Mountains—the Atlantic Slope, and the Atlantic Plains. The table-land of Mexico is 1600 miles long, equal to the distance between the north extremity of Scotland and Gibraltar! About 7000 feet high on the east, it rises to 9000 at the city of Mexico, and declines to 4000 towards the Pacific.

One of the singular crevices through which the internal fire finds a vent, stretches from the Gulf of Mexico to the Pacific, directly across the table-land, in a line about sixteen miles south of the city of Mexico. A very remarkable row of active volcanoes occurs along this parallel. Turtla, the most eastern of them, is in the 95th degree of west longitude, near the Mexican Gulf, in a low range of wooded hills. More to the west the snow-shrouded cone of Orizabo is 17,000 feet high; and its ever fiery crater, seen like a star in the darkness of the night, has obtained the name of Citlaltepētl, the "Mountain of the Star." Popocatepetl, the loftiest mountain in Mexico, 17,884 feet above the sea, lies still farther west, and is in a state of constant eruption. A chain of smaller volcanoes unites the three. On the western slope of the table-land, thirty-six leagues from the Pacific, stands the volcanic cone of Jorullo,\* on a plain 2890 feet above the sea. It suddenly appeared and rose 1683 feet above the plain on the night of the 29th of September, 1759. The great cone of Colima, the last of this volcanic series, stands insulated in the plain of that name, between the western declivity of the table-land and the Pacific. \* \* \*

Some points of the Sierra Madre are said to be 10,000 feet high, and 4000 above their base; and between the parallels of thirty-six and forty-two degrees, where the chain is the watershed between the Rio Colorado and the Rio Bravo del Norte, they are still higher, and perpetually covered with snow. \* \* \*

Deep cavities, called Barancas, are a characteristic feature of the table-lands of Mexico. They are long narrow rents, two or three miles in breadth and many more in length, often descending 1000 feet below the surface of the plain, with a brook or the tributary of some river flowing through them. Their sides are precipitous and rugged, with overhanging rocks covered with large trees. The intense heat adds to the contrast between these hollows and the bare plains, where the air is more than cool.—Pp. 169–171.

The Rocky Mountains stretch in two parallel chains, occasionally united by a transverse ridge from the Sierra Verde to the mouth of Mackenzie river. The eastern line rises even to the snow-level, and in mountains Hooper and Brown, to 15,590 and 16,000 feet above the sea. The chains along the shores of Russian America are still more Alpine in their character, rising in the case of Mount Elias to 17,000. There are many active volcanoes in the branch running to Bristol Bay; and in the Prince of Wales' Archipelago, there are no fewer than seven active volcanoes.

The great central plain of North America, between the Rocky and Alleghany Mountains, has an area of 3,240,000 miles. It is 5000 miles long,

\* North British Review, vol. iv., p. 218.



rarely more than 700 feet high, and nowhere more than 1500 feet. In part of its northern portion it contains the most fertile territory in the United States—in its middle are interminable grassy savannas, or prairies, or enormous forests; in the south are sandy deserts 400 or 500 miles wide; and in the far north are deserts rivaling those of Siberia in dreariness.

When America was discovered, an uninterrupted forest spread over the country, from the Canadian lakes to the Gulf of Mexico, and from the Atlantic into the valley of the Mississippi, "forming an ocean of vegetation of more than 1,000,000 square miles, of which the greater part still remain." For hundreds of miles the mighty Ohio flows through magnificent forests with an undergrowth of rhododendrons, azaleas, and other beautiful shrubs. "There the American forests appear in all their glory; the gigantic deciduous cypress, and the tall tulip-tree overtopping the forest by half its height; a variety of noble oaks, &c., &c., and the lirioidendron, the most splendid of the magnolia tribe, the pride of the forest." In describing the immense forests of Canada, consisting of spruce and pine trees, which grow to a great height, like bare spars with a tufted crown, Mrs. Somerville describes, after Mr. Taylor, the effects produced upon a forest by a heavy fall of snow.

After a heavy fall of snow, succeeded by rain and a partial thaw, a strong frost coats the trees and all their branches with transparent ice often an inch thick: the noblest trees bend under the frost, and icicles hang from every bough which come down in showers with the least breath of wind. The hemlock spruce, especially, with its long drooping branches, is then like a solid mass. If the wind freshens, the smaller trees become like corn beaten down by the tempest, while the large ones swing heavily in the breeze. The forest at last gives way under its load; tree comes down after tree with sudden and terrific violence, crushing all before them, till the whole is one wide uproar, heard from afar, like successive discharges of artillery. Nothing, however, can be imagined more brilliant and beautiful than the effect of sunshine in a calm day on the frozen boughs, where every particle of the icy crystal sparkles, and nature seems decked in diamonds.—Pp. 178, 179.

In her *nineteenth* chapter, Mrs. Somerville includes the Arctic and Antarctic regions of Greenland, Spitzbergen, Iceland, Jan Mayen's land, and the Antarctic lands recently discovered by Sir James Ross. The coasts of Greenland, with which we are acquainted, are indented by fiords stretching into the interior, often for 100 miles. These inlets, hemmed in by walls of rock, often 2000 feet high, terminate in glaciers, which are sometimes pressed down by the superincumbent ice, so as often to fill the fiord, and project like bold headlands into the sea. Undermined by the action of the waves, huge masses, like little mountains, fall into the sea, with a crash like thunder, and form the icebergs, which are either stranded by currents on the Arctic coast or driven into lower latitudes till they are thawed under a tropical sun.

In 68° of N. latitude a great fiord is supposed to stretch across the table-land and divide the country into S and N. Greenland, "which last extends indefinitely to the very pole" of the earth.

Iceland, 200 miles E. of Greenland, though a fifth part larger than Ireland, is, generally speaking, a country of volcanoes and ice, only about 4000 square miles of it being habitable.\* "The peculiar feature of Iceland lies in a trachytic region, which seems to rest on an ocean of fire. It consists of two parallel ranges of Jokul or Ice Mountains, rising from table-lands, passing through the very centre of the island, from N. E. to S. W., and separated by a longitudinal valley. The most extensive of these ranges is the eastern one, which contains Orafa Jokul, the highest mountain in Iceland. Many thousand square miles are covered with glaciers which descend far into the low lands.

The longitudinal space between the mountainous table-lands is a low valley 100 miles wide, extending from sea to sea, where a substratum of trachyte is covered with lava, sand, and ashes, studded with low volcanic cones. It is a tremendous desert, never approached without dread even by the natives; a scene of perpetual conflict between the antagonist powers of fire and frost, without a drop of water or a blade of grass: no living creature is to be seen, not a bird nor even an insect. The surface is a confused mass of streams of lava rent by crevices; and rocks piled on rocks, with occasional glaciers, complete the scene of desolation. \* \* \* The extremities of the valley are more especially the theatres of perpetual volcanic activity. At the southern end, which opens to the sea in a wide plain, there are many volcanoes, of which Hekla is most known, from its insulated position, its vicinity to the coast, and its tremendous eruptions. The cone is divided into three peaks by crevices which are filled with snow; one of these fissures cleaves the mountain from the summit to the base; it is supposed to have been produced by the great eruption of 1300. Between the years 1004 and 1766, twenty-three violent eruptions have taken place, one of which continued six years, spreading devastation over a country once the abode of a thriving colony, now covered with lava, scorise, and ashes; and in the year 1846 it was in full activity. The eruption of Skaptar, which broke out on the 8th of May, 1783, and continued till August, is one of the most dreadful recorded. The sun was hid many days by dense clouds of vapor, which extended to England and Holland, and the quantity of matter thrown out in this eruption was computed at fifty or sixty thousand millions of cubic yards. Some rivers were heated to ebullition, others dried up: the condensed vapor fell in snow and torrents of rain; the country was laid waste, famine and disease ensued, and in the course of the two succeed-

\* In treating of Iceland, Mrs. Somerville quotes by mistake, "Trevelyan's Travels in Iceland." Sir Walter Trevelyan never was in Iceland, and never wrote any book of travels, or any work upon Iceland. The work to which Mrs. S. has by an oversight referred, is a *Memoir On the Vegetation and Temperature of the Faroe Islands*, published in the Ed. New Phil. Journal, Jan. 1837, and reprinted, with corrections, at Florence, in 1837. Sir Walter visited Faroe in 1821; and in a letter, dated July 24, 1822, addressed to the writer of this article, and published in the *Edinburgh Transactions*, vol. ix., p. 461, he has given a very interesting notice of the "Mineralogy of the Faroe Islands."

ing years 1300 people, and 150,000 sheep and horses perished. The scene of horror was closed by a dreadful earthquake. Previous to the explosion an ominous mildness of temperature indicated the approach of the volcanic fire towards the surface of the earth: similar warnings had been observed before in the eruptions of Hekla.—Pp. 193, 194.

The Boiling Springs or aqueous eruptions of Iceland, called Geysers, which were long ago well described by Sir John Stanley, Sir W. Hooker, and Sir George Mackenzie, are among the most interesting phenomena in physical geography, and have been ranked even among "the greatest wonders of the world." As Mrs. Somerville has devoted to them only a brief paragraph, and has scarcely described the Great Geyser itself, we must endeavor to supply this defect, trusting that in another edition she will enlarge this portion of her work. These volcanic fountains are situated about 16 miles north of Skalholt, to the east of a small ridge, separated by a swamp from a group of high mountains. The principal fountains are the Great and Little Geysers and the Tunguhver. The *Great Geyser* rises from a cylindrical pipe or pit, 8 or 10 feet in diameter, and 75 feet in perpendicular depth, opening into the centre of a basin from 46 to 56 feet in diameter, and four feet deep. Hot water, having silic in solution, rises gradually through the pit till it runs over, depositing silicious sinter at the bottom, and round the cavity. When the basin is full, subterranean explosions, like the firing of distant cannon, are heard at intervals of some hours, accompanied with a tremulous motion of the ground. The water then rushes up from the pit, and sinking again, agitates the water in the basin, and causes it to overflow. A stronger rush of water now takes place, clouds of vapor follow, and loud explosions are heard. Steam escapes in large quantities, and the water is thrown up to the height of 100 to 150 feet.\* The cold air condenses the steam into vapor, which is tossed about in dense clouds, tumbling one over another with singular rapidity, and forming a sight of great interest and magnificence. When the basin and its pipe are thus emptied the explosions cease, and are renewed after they have been again filled from below. Mr. Henderson found the temperature of the water in the basin 203° before an explosion, and 183° after it. The *New Geyser*, or *Strockr*, 140 yards from the Geyser, is an irregularly shaped pit, nine feet in diameter and 44 deep. The water is seen in a state of great agitation about 20 feet below the orifice, which is not encircled like the cavity

of the other Geyser, by silicious sinter. At variable intervals a prodigious rush of steam issues with a roaring noise; and so great is the force of propulsion, that the mass of vapor rises perpendicularly to the height of 100 and sometimes 200 feet, even when there is a good deal of wind. When large stones are thrown into the pit they are shivered to pieces, and thrown upwards to a height often greatly exceeding that of the columns of vapor and water.\* In the valley of Reikholt is situated, among a great number of boiling springs, the celebrated spring of *Tunguhver*; it consists of two cavities, distant only three feet, from which the water is ejected in alternate jets. While the water is thrown up from the one cavity, in a narrow jet, 10 feet high, the water in the other cavity is in a state of violent ebullition. The narrow jet, after playing for about four minutes, subsides, and the water in the other cavity instantly rises in a greater column, to the height of three or four feet. After playing three minutes this greater jet subsides, and the other rises to repeat its singular alternations.

The general phenomena of the Geysers are obviously caused by the generation of steam in cavities containing water, and of such a strength that when the steam occupies a certain space it overcomes the pressure of the water, which is thrown out and followed by the steam. It is not easy, however, and has not been satisfactorily done, to explain the irregular alternations of the *Tunguhver* springs. Although the principal Geysers have been playing for 600 years, yet they are subject to great changes, arising from changes in the internal fires by which they are produced. One of the springs which Sir John Stanley describes as incessant, and which Sir George Mackenzie mentions as very active when he visited the island in 1809, was found by Mr. Barrow to be extinct in 1834, and the surface of the neighborhood so changed, that the appearances described by the older travellers could not be recognized. In the same valley there is a small rock, from the top of which hot springs issue; and at Reikholt, the celebrated hot bath, excavated 600 years ago, by Snorro Sturleson, is still to be seen. It is fourteen feet in diameter and six feet deep, and is supplied with hot water from a spring 100 yards distant, by means of a covered channel, which has been injured by an earthquake, and by cold water from another neighboring fountain.

In the district of Guldbringé, in the Sulphur Mountains, there are natural cauldrons of a black boiling mud, and also numerous jets of steam. One of the most remarkable of these springs is the mud volcano of Reykiahlid near Myvat. It issues from the crater of Mount Krabla, in the N. E. ex-

\*Mr. Henderson discovered, that by throwing stones into the spring, he could make it play whenever he chose, and throw its waters to nearly double their usual height. In describing the three hot springs, next to the Geysers in magnitude, called *Nordur-hver*, *Oxu-hver*, and *Syðster-hver*, Mr. Henderson mentions the extraordinary statement made by Horrebow in his *Natural History of Iceland*, that "when the water of the *Nordur-hver* is put into a bottle, it continues to jet twice or thrice with the fountain; and if the bottle be corked immediately, it bursts in pieces on the commencement of the following eruption of the spring!"—*Journal*, vol. i., p. 55, note, and p. 146.

\*In the time of Olafsen and Povelsen the height of the jet was 360 feet. In 1772, when visited by Von Troil, it rose to 92 feet. In 1759, Sir John Stanley found it 96 feet. In 1804, Lieut. Ohlsen found it by a quadrant to be 212 feet. In 1809, Sir W. Hooker mentions 100 feet; and in 1810, Sir George Mackenzie makes the height 90 feet. In 1814, Mr. Henderson made the height of the jet equal to 75 feet, but in August, 1815, he saw it reach an elevation of 150 feet.—*Journal of a Residence in Iceland*, vol. i., p. 55, note.

tremity of the island, and has been well described by Mr. Henderson, who visited Iceland in 1814 and 1815. At the bottom of a deep gully there is a pool 300 feet in circumference, containing black liquor and mud. From the orifice in the centre of the pool there is emitted, with a loud thundering noise, a huge column of mud, equal in diameter to that of the great Geyser, rising at first to a height of 12 feet, but soon ascending by starts to its greatest elevation, which is often above 30 feet. The column rapidly subsides, and when it has completely fallen, the orifice can be recognized only by a gentle bubbling up of the surface. These eruptions, lasting only about  $2\frac{1}{2}$  minutes, are repeated every five minutes. "The above," says Mr. Henderson, "is an outline of this wonderful pool, but its horrors are absolutely indescribable. To be conceived they must be seen; and I am convinced that the awful impression they left on my mind no length of time will ever be able to erase."\* M. Mengé of Hanau, who visited Iceland in 1819, informs us that the silicious water of the hot springs contains sulphur, gypsum, alum, bole, &c., that these substances disappear as soon as the water cools, and that the residuum is *trap-porphyry*, in the Geysers, *lava* in those of Reiknæss, *basalt* in those of Kryswick, and even *amygdaloid* in others! M. Mengé satisfied himself that the Westmanna Islands, 18 miles from Iceland, were once continuous with it; and he was informed that the volcano of Heimo-Ey, in these islands, was "formed probably by a subterranean communicating canal, during an eruption of Eyafialla Jokul."

We would willingly linger over this land of wonders did our limits permit us. We would describe its *Odada Hraun*, or district of "Horrible Lavas;"—its moving ice-mountains 20 miles long, 15 broad, and 400 feet high, approaching to and receding from the coast;—its *Ale Wells*, which intoxicate those who drink a considerable quantity on the spot;—its magnificent *Elldborg*,† or "Fortress of Fire," with its lava battlements 200 feet high and 1800 in circuit;—the *Lon-dranquer*, or two "curious looking natural obelisks, the highest of which is 240 feet from its base;—the sulphur mountains of Krisuvick;—the wonderful mountain of Oræfa Jokul, which burst with a dreadful explosion in 1367, and again in 1797, pouring out deluges of hot water, in which 600 sheep and 160 horses perished;—and, finally, the volcanic *Jokul Kottlugia*, which poured forth such floods of ice and water that the church of Hofdubrecka was observed to swim among the masses of ice to a considerable distance in the sea, before it fell to pieces!"‡

\* *Journal*, &c., vol. i., pp. 171—175.

† A plate representing this extraordinary volcanic hill is given by Dr. Henderson, in vol. ii., p. 23.

‡ These extraordinary scenes, no doubt, from want of space, are not described by Mrs. Somerville. Regarding Iceland as one of the most extraordinary spots on the surface of the earth, the very focus of subterranean fires still raging beneath it, and producing phenomena of the most gigantic and interesting character, we would strongly recommend to the notice of our readers the valuable and

Mrs. Somerville has mentioned only in a few lines the islands of Jan Mayen and Spitzbergen, which are peculiarly interesting to Englishmen, as they are within the reach of our more adventurous whale ships. Captain, now Dr. Scoresby, visited both of these islands, and has published a very valuable description of them, from which we shall glean a few interesting facts. The principal object in Jan Mayen is the volcanic mountain of Beerenberg, or the Mountain of Bears, situated at the north extremity of the island. It rises from a mountainous base, and rears its ice-clad summit to the height of 6870 feet. Captain Scoresby ascended another volcanic mountain, between 1000 and 1500 feet high, with an elliptical crater, 400 by 240 feet wide, on the side of which was a subterranean cavern, from which issued a spring of water, that afterwards disappeared in the sea. Between the north-east and south-east Capes there are three remarkable icebergs, which occupy three hollows in the almost perpendicular cliff, which stretches from the base of Beerenberg to the water's edge. Their perpendicular height was about 1284 feet. These icebergs, unlike any he had seen, resembled cataracts suddenly frozen.

A little to the north of Prince Charles' Island, on the east coast of Spitzbergen, there are extraordinary accumulations of ice, known by the name of the *Seven Icebergs*. Each of them is about a mile long, and nearly 200 feet high at the sea edge; and each occupies a deep valley opening towards the sea, and flanked by hills 2000 feet high, and terminated in the interior by a chain of mountains, about 3500 feet in height. The largest iceberg which Captain Scoresby saw was a little to the north of Horn Sound, extending eleven miles in length along the coast; the highest part of its sea-front was 2102 feet, and its breadth towards the interior about 1600 feet. Captain Scoresby had the good fortune to witness the fall of a mass of ice into the sea, about 50 feet square, and 150 feet high. It descended with an awful crash, like that of thunder, and broke into a thousand pieces. "The water into which it plunged was converted into an appearance of vapor or smoke like that from a furious cannonading."

Mrs. Somerville concludes her description of the polar regions with an abstract of the discoveries of Sir James Ross, in the Antarctic Zone; but we must refer our readers to the more ample details,

able work of Dr. Henderson, entitled, *Iceland, or the Journal of a Residence in that Island during the years 1814 and 1815*. 2 vols. Edinburgh, 1818. The object of the author "was exclusively to investigate the wants of its inhabitants with respect to the Holy Scriptures," and to adopt measures for supplying them: The personal narrative is exceedingly interesting, and the description of the physical wonders of the island correct and scientific; while a tone of elevated and unobtrusive piety runs, in a gentle under-current, through the whole book. We are surprised that such a work is not better known; and while we recommend the republication of it in a cheap form, we would bespeak for it the especial patronage of the Christian reader. It is impossible to follow the author in his adventurous journey without feeling at every step that the great Architect of our globe is at that moment working with a tremendous agency, before us, above us, and beneath us.



which we have already given in our analysis of Sir James' important work.\*

In the *fourteenth* chapter of the work before us, and the last which relates to the physical description of the EARTH, Mrs. Somerville treats of the continent of Australia, Van Diemen's Island, New Zealand, New Guinea, and Borneo—a region full of interest both to the philosopher and the statesman. The continent of New Holland, 2400 miles long, and 1700 broad, is marked on its eastern coast by a chain of mountains 1500 miles long, which has generally a meridional direction, and never deviates much from the coast. Their average height is only from 2400 to 4700 feet; and the loftiest of them, Mount Kosciuszko, does not exceed 6500 feet. The character of these mountains is peculiarly rugged and savage, in some cases round at top, and crowned with forests; but generally, though wooded on their flanks, terminating in bare aiguilles, tooth-shaped peaks, and flat crests of granite or porphyry, mingled with patches of snow. The triangle of Van Diemen's Island contains 27,200 square miles. The mountainous chain from New Holland starts from Cape Portland, passes through the island in the shape of the letter Z, with an average altitude of 3750 feet, and an average distance of forty miles from the coast.†

New Zealand is divided by dangerous and rocky channels into three islands—the Northern, or New Ulster, the Middle, or New Munster, and the Southern Island, or New Leinster, which is an exceedingly small one. Chains of lofty mountains pass through the islands, rising in New Ulster 14,000 feet “above the stormy ocean around, buried two thirds of their height in permanent snow and glaciers, and exhibiting, on the grandest scale, all the Alpine characters, with the addition of active volcanoes on the eastern and western coasts.” In New Munster, or the middle island, where, according to Major Bunbury, the bleak and savage appearance of its chain of mountains, covered with eternal snow, was forcibly contrasted with the real amenity of its climate, and the fertility of its soil near the coast, is situated the interesting Free Church settlement of Otago, now establishing under the patronage of the New Zealand Company. The river Clutho, which forms the southern boundary of the settlement, is a magnificent river, a quarter of a mile broad at its mouth, and winding, with a navigable channel, six fathoms deep, through extended plains of great beauty and extraordinary fertility. Coal in thick beds, iron, and copper—the material elements of civilization, are found in this district; and we trust that its better and nobler ingredients of churches and schools, will soon consecrate the sites of Dunedin and Port Chalmers, and rear a Christian population who will do honor to their Scottish ancestors by their piety and virtues, and diffuse the blessings of knowledge and religion over the benighted regions around.

After describing very briefly the principal islands

of the Indian Archipelago—the largest of them Papua or New Guinea, 1400 miles long, by 200 in breadth, and with mountains 16,000 feet high, embracing two active volcanoes; and Borneo, the next in size, with its diamonds, and gold, and spices, and its noble British Rajah—Mrs. Somerville proceeds to give a very interesting account of the coral formations in the Pacific and Indian Oceans, presenting a valuable abstract of the admirable generalizations of Mr. Darwin. But as we have already had occasion to direct the attention of our readers to this curious branch of Physical Geography, we must refer our readers to a former article,\* and follow Mrs. Somerville to the volcanic islands in the Pacific. Although these islands are very numerous, yet there is not one of them within the immense areas of subsidence marked out by the coral islands and reefs of the Pacific; and “there is not an active volcano within several hundred miles of an archipelago, or even group of the Atolls or Lagoon Islands. The volcanic islands are, generally speaking, arranged in zones, one of the most active of which is the Banda group, including Timor, Sumbawa, Bali, Java, and Sumatra, forming a curved line 2000 miles long.” The little island of Gounong-api, belonging to the Banda group, contains a volcano of great activity; and such is the elevating pressure of submarine fire on that part of the ocean, that a mass of black basalt rose up, of such magnitude, as to fill a bay sixty fathoms deep, and so quietly, “that the inhabitants were not aware of what was going on till it was nearly done.” The second zone of volcanic islands, containing many open vents, begins to the north of New Guinea, and passes through New Britain, New Ireland, Solomon's Island, and the New Hebrides. The third, and greatest of all the volcanic zones, commences at the north extremity of Celebes, including Gilolo, “bristled with volcanic cones,” the Philippine isles of Formosa, Loo-Choo, and the Kurile isles of Kamtchatka, which contain several active volcanoes of great height. Volcanic eruptions in the Japan Archipelago occur in six islands east of Jephoon; and in the Kurile islands the internal fire has shown itself in eighteen volcanoes. In the beginning of this century there appeared two new islands, one five miles round, and the other 3000 feet high, in a part of the ocean so deep, that a line of 1200 feet did not reach the bottom. “On the other side of the Pacific the whole chain of the Andes, and the adjacent islands of Juan Fernandez and the Galapagos, form a vast volcanic area, which is actually now rising.” In the table-land of Western Asia, where the internal fire had once been intensely active, we have now only the spent volcano of Demavend, from whose snowy cone smoke occasionally issues. In the table-land of Eastern Asia there is only one volcano in the chain of Thian-Chan.‡

\* North British Review, vol. vi., pp. 243-249.

† *Ib.*, vol. v., pp. 477-480. An interesting map, showing “the phenomena of volcanic action, the regions visited by earthquakes, and the distribution of volcanoes over the globe,” will be found in Berghaus and Johnston's *Physical Atlas*, part iv., Geology, Plate VII.

\* North British Review, vol. viii., pp. 177-216.

† An account of the fossil forest of the Derwent will be found in the North British Review, vol. viii., p. 202.



or ten miles a-day. The Gulf Stream, and other currents, which we have elsewhere described, originate from this great "oceanic river."\*

As the mean temperature of the earth at the poles is about  $10^{\circ}$  of Fahrenheit, and about  $2^{\circ}$  or  $3^{\circ}$  below zero at the two poles of maximum cold,  $12^{\circ}$  distant from the poles of revolution, and situated in the meridians of Canada and Siberia, the Arctic and Antarctic Oceans are completely frozen during eight months of the year, a continuous body of ice, extending round the poles of maximum cold, and occupying a sort of elliptical area above 4000 miles in its mean diameter. The icebergs which are detached in pieces from the glaciers, that lie on the margin of this gelid region, are sometimes drifted southward 200 miles from their origin. The largest and the farthest travelled icebergs come from the South Pole. Capt. D'Urville observed one *thirteen miles* long, with perpendicular sides 100 feet high. The icebergs of the Arctic Zone have been already described; and, in our review of Sir James Ross' voyage, the reader will find interesting details respecting the ice-masses of the Antarctic Ocean, and the dangers of navigating an icy sea.†

After describing the inland‡ seas which diverge from the two great oceans, and which, in the case of the Atlantic, have a coast of 48,000 miles, and of the Pacific only 44,000, Mrs. Somerville proceeds, in her *sixteenth* chapter, to the subject of springs, hot and cold, and to the origin and cause of floods in rivers, devoting the other two chapters of the first volume, and the two first chapters of the second, to the description of the river systems and lakes of the great continents of the earth.

Although hot and boiling springs are most common in volcanic regions, yet they are often found at the distance of many hundred miles from volcanic districts. In the Austrian dominions there are no fewer than 1500 medicinal springs, containing sulphuric and carbonic acids, iron, magnesia, sulphur, iodine, and other ingredients. The boiling springs of Iceland, Italy, and the Azores, deposit silex; and all over the world there are springs that deposit carbonate and sulphate of lime in enormous quantities. The brine springs of Cheshire have flowed unchanged for 1000 years. "Springs of naphtha and petroleum are abundant round the Caspian Sea," the petroleum forming even lakes in that singular region.

In the physical geography of rivers, many interesting phenomena are presented to the student. While it is the general character of a river to advance with an increasing quantity of water to the sea, there are cases where rivers and streams are

absorbed by the soil, and are actually lost before they reach the ocean. At the Perte du Rhone, the river disappears and reappears; and there are streams in Derbyshire which are lost for a time, and again rise to view. When the Arve, which runs into the Rhone below Geneva, is swollen by a freshet, it sometimes drives back the Rhone into the Lake of Geneva, and, on one occasion, the retrograde current actually made the mill-wheels revolve in the opposite direction.

Instances have occurred of rivers suddenly stopping in their course for some hours, and leaving their channels dry. On the 26th of November, 1838, the water failed so completely in the Clyde, Nith, and Teviot, that the mills were stopped eight hours, in the lower part of their streams. The cause was the coincidence of a gale of wind, and a strong frost, which congealed the water near their sources. Exactly the contrary happens in the Siberian rivers, which flow from south to north over so many hundreds of miles; the upper parts are thawed, while the lower are still frozen, and the water, not finding an outlet, inundates the country.—P. 270.

The tides of the ocean often flow up rivers to a great distance from their mouths, and frequently to a height far above the level of the sea. In the Amazons, the tide is perceptible 576 miles from its mouth, and in the Orinoco it ascends 255 miles.

It would require much greater space than our limits allow, to give even the briefest abstract of Mrs. Somerville's four chapters on the river or hydraulic systems, and on the lakes in the Old and New World. It is impossible, indeed, to peruse these chapters with the interest which they possess, unless we have before us excellent charts of the river systems themselves, free of all the other details which are given in ordinary maps. Maps of this kind, of great beauty and accuracy, have been published by Messrs. Johnston and Berghaus; and we would recommend to our readers, to study this part of Mrs. Somerville's work with these beautiful hydrological plates in their hands.\*

In treating of river systems, hydrologists divide the subject into eight different parts: the *Basins*—the *Watershed and Portage*—the *Bifurcations*—the *Size and Length of Rivers*—the *River Courses*—the *Deltas*—the *Velocity of Rivers*, and their *Development*. The *basin* of a river is the whole sources, brooks, and rivulets, whose waters contribute to its formation—or the surface of the country which it drains. The *watershed* is the place where waters begin to descend in opposite directions. When the watershed is flat, so that barges can be easily conveyed over it from one river to another, the places where this can be done are called *portages*. When opposite river basins are separated by a country, so depressed on its surface as to permit the water of one river, when diverted from its channel, to join another river with which it has no connection, the phenomenon is called the *bifur-*

\* North British Review, vol. iv., p. 248, and Berghaus and Johnston's *Physical Atlas*, Hydrology, Plates I., II., III., showing the currents, &c., of the Pacific, Atlantic and Indian Oceans.

† North British Review, vol. viii., p. 205, &c. See also vol. i., pp. 31, 32; vol. iv., p. 248; and Berghaus and Johnston's *Physical Atlas*, part i., p. 6, § vii.

‡ The Baltic, Black Sea, Mediterranean, Baffin's Bay, Hudson's Bay, Gulf of Mexico, the Red Sea, and the Persian Gulf.

\* These charts, *two* in number, form plates V. and VI. of the department of Hydrology in the *Physical Atlas*, and represent the oceanic rivers, the continental rivers, and the river basins.



cation of a river. There are many such bifurcations in America, and in the deltas of rivers generally; but the most remarkable is that in which the *Casiquiare*, (which our countryman, Sir R. Schomburgk,\* lately found to be 120 miles long in direct distance, and 176 in its windings,) flowing through the plains of Esmeralda, unites the Orinoco with the Marañon. It is 300 feet wide where it leaves the Orinoco, and 1650 where it joins the Guainia, a tributary of the Marañon. The size and length of rivers, including their windings, is an indication of their importance, both in navigation and commerce. In the progress of a river, it is divided into the *upper*, the *middle*, and the *lower* course. The upper course is generally through rapids, the middle course through plains, and the lower where it tends to divide and ramify forms *Deltas*, (so called from their resemblance to the Greek letter delta, Δ,) which are divided into *fluvial*, *lacustrine*, and *maritime*—*fluvial*, when the river falls into another; *lacustrine*, when it falls into a lake; and *maritime*, when it falls into the sea. The *velocities* of rivers indicate the form and inclination of their channels, and the volume of water they contain. The *development* of a river, is its length from its source to its mouth, including all its windings and turnings. Following Johnston and Berghaus in their definitions, we shall now present, on their authority, the following abridged view of the different river systems in the Old and New Worlds:—

## ATLANTIC SYSTEM.

	River Basins in square miles.	Direct length in geog. miles.	Windings in geog. miles.	Ratio of windings to direct len <sup>th</sup> .
Rhine,	16,324	360	600	0.6
Vistula,	14,160	280	520	0.8
Elbe,	10,464	344	684	1.0

## MEDITERRANEAN SYSTEM.

Nile,	130,200	1,320	2,240	0.7
Po,	7,488	232	352	0.5
Rhone,	7,040	208	560	1.6

## EUXINE SYSTEM.

Danube,	58,520	880	1,496	0.7
Dnieper,	42,420	548	1,080	1.0
Don,	42,104	408	960	1.3

## ARCTIC SYSTEM.

Obi,	231,200	1,276	2,320	0.8
Yenisei,	196,132	1,228	2,800	1.2
Lena,	148,600	1,398	2,400	0.7

## CONTINENTAL SYSTEM.

Volga, Caspian,	99,360	600	2,040	2.4
Sir,	59,480	760	1,208	0.6
Amoo, } Aral,	48,400	816	1,400	0.7

## EAST PACIFIC SYSTEM.

Amour,	145,720	1,220	2,380	0.9
Yang-tse-Kiang,	136,800	1,568	2,880	0.8
Hoang-ho,	134,400	1,120	2,280	1.0

## SYSTEM OF INDIAN OCEAN.

Ganges and Bramapoutra,	108,120	824	1,680	1.0
Indus,	78,000	1,096	1,960	0.8

\* Journal of the Geographical Society, vol. x., p. 249.

## ATLANTIC SYSTEM.

	River Basins in square miles.	Direct length in geog. miles.	Windings in geog. miles.	Ratio of windings to direct len <sup>th</sup> .
Great Lakes & St. Lawrence,	297,600	860	1,800	2.1
Orinoco,	52,000	368	1,352	2.6
Marañon,	1,512,000	1,548	3,080	1.0
La Plata,	886,400	1,028	1,920	0.9

## SYSTEM OF THE MEXICAN GULF, &amp;c.

Mississippi & Missouri,	982,400	1,412	3,560	1.5
Rio del Norte,	180,000	1,220	1,840	0.5

## ARCTIC SYSTEM.

Mackenzie Riv.,	441,600	964	2,120	1.2
Saskatchewan,	360,000	924	1,664	0.8

## WEST PACIFIC SYSTEM.

Columbia,	196,400	576	1,360	1.4
Colorado,	169,200	512	800	0.6

If we reckon the whole running waters of Europe to be unity, or 1.00, the quantities discharged into the different seas will be,

Black Sea,	0.27 parts.	Baltic,	0.13
Caspian,	0.16 "	German Ocean,	0.11
Mediterranean,	0.14 "	Arctic Sea,	0.06
Atlantic,	0.13 "		

Hence the Black Sea swallows up the *third part* of all the running waters in Europe!

The quantity of water discharged by each of the European rivers will be as follows, assuming all the rivers to give 1.00 parts:—

The Volga discharges,	0.14 parts.	Don,	0.05
Danube,	1.12 "	Rhine,	0.03
Dnieper,	00.6 "	Dwina,	0.02

With the following table, showing the character of the great American lakes, we must conclude our observations on the hydrology of the earth.\*

	Mean length in miles.	Mean breadth in miles.	Mean depth.	Height above sea.	Area in sq. miles.
Lake Superior,	400	80	900	596	32,000
Lake Michigan,	320	70	1000	578	22,400
Lake Huron,	240	80	1000	578	20,400
Lake Erie,	240	40	84	565	9,600
Lake Ontario,	180	35	500	232	6,300

From the physical geography of the waters of the globe, Mrs. Somerville proceeds, in the *twentieth* chapter, to the consideration of the *Air*, or the *Atmosphere*—its density—its currents—its temperature—its moisture—its electricity—its diamagnetism, and its constituents.† These important subjects are treated in the narrow space of *ten* pages, and of course without any of those interesting details of which they are susceptible. Mrs. Somerville will, no doubt, supply the defects of this chapter in a second edition, and dwell at greater length upon these and other topics which are little more than mentioned. There is, in our

\* The reader will find more ample details in the letter-press descriptions of Berghaus and Johnston's Hydrological Maps, plates V. and VI.

† M. Doyer has very recently shown that the composition of the atmosphere is *constantly changing*, the quantity of oxygen varying from 20.5 to 21.3. *Comptes Rendus*, &c., 14 Fev., 1843, p. 194, and 21 Fev., p. 234, Note.

opinion, no department of Physical Geography so interesting as that of the atmosphere, and none certainly with which we are so intimately connected, and in which we are so deeply interested. Mrs. Somerville does not even mention the Isothermal lines of Humboldt and his fellow-laborers; nor the optical phenomena of the atmosphere, such as its polarization, its colors, its phenomena of unequal refraction; nor its optical and electrical meteorology; nor the distribution of magnetism either in the atmosphere or on the earth.\*

The remaining chapters of Mrs. Somerville's work, eleven in number, are devoted to the interesting subject of the distribution of organic life over the globe. Five of these are devoted to the nourishment and growth of plants, and to the vegetation and Flora of the four quarters of the globe, and beneath the surface of the ocean. She then treats, in separate chapters, of the distribution of insects—of fishes—of reptiles—of birds—of the mammalia—and, finally, of the "distribution, condition, and future prospects of the human race." We could have wished to follow Mrs. Somerville in her instructive journey through the world of organic life, standing in mute admiration before its gigantic denizens, recognizing in everything that lives and breathes the wisdom and benevolence of its Maker—enjoying with grateful heart the luxurious repasts, physical and intellectual, which organic nature provides—and looking forward with faith and hope to the final development of those mysterious arrangements in which we have to perform so prominent a part:—Our exhausted space, however, will not allow us, and we regret this the less, as the importance of the subject may induce us to return to it when we can command ample room for its interesting details.

In the last chapter of her work, occupying a considerable space, Mrs. Somerville treats of the *distribution, condition, and future prospects of the human race*. The human family consists of 860 millions of souls, speaking more than 2000 languages. It has been divided into five classes—the Circassian race, the Mongol-Tartar race, the Malayan race, the Ethiopian, and the American races. The *Circassian* race, with their small, finely modelled head, fine hair, and symmetrical form, inhabit all Europe, except Lapland, Finland, and Hungary. The *Mongol-Tartars* occupy all Asia north of the Persian table-land, and the Himalaya range—the whole of Eastern Asia from the Bramapoutra to Behring's Straits—together with the Arctic regions of North America, north of Labrador, and Hungary. They have "broad skulls, high cheek-bones, small black eyes, obliquely set, long black hair, and a yellow or sallow complexion." The *Malayan* race, with their "dark complexion, lank, coarse black hair, flat

face, and obliquely set eyes," occupy the Indian Archipelago, New Zealand, Chatham Island, the Society group, and several others of the Polynesian Islands, together with the Philippines and Formosa. The *Ethiopian* race, with their "black complexion, black, woolly, or frizzled hair, thick lips, projecting jaw, high cheek-bones, large, prominent eyes," occupy all Africa south of the Sahara, half of Madagascar, the continent of Australia, Mindanao, Gilolo, the High Lands of Borneo, Scandinavia, Timor, and New Ireland. The *American* race occupy all America from 62° of north latitude to the Straits of Magellan. They are of a reddish brown or copper color, with long black hair, deep-set black eyes, and aquiline nose. Inhabiting different climates, from the frozen soil of the Arctic Zone to the burning sands of the Equatorial regions; fed upon different food—suited to the climate; occupied in different pursuits, both physical and mental—these different races, though sprung from the same stock, have gradually acquired those features, both corporeal and mental, by which they are at present distinguished.

Is it possible that the human family thus composed, severed by language, separated by oceans, and placed at such unequal distances from the goal of civilization—can ever be combined into one harmonious community, striving in one common cause, and aiming at one common end? When we look at the white race—the self-constituted aristocracy of the species—reared under civil and religious institutions, and claiming the superiority due to piety and learning, we can scarcely conceive them to belong to the same family as the other races upon whom the light of science and revelation has not yet been permitted to shine. The difficulty, however, gradually disappears when we contemplate civilized man in his principles and conduct as an individual agent. The Christian citizen, with his household, or his cargo of slaves—the gold-thirsty colonist with his ferocious bloodhounds—the crafty statesman with his minions of corruption, and the conqueror with his battalions equipped for bloodshed, are not less striking anomalies among a civilized and Christian people, than the African bartering his kindred for gold—or the Indian burning the widow and drowning the child—or the cannibal drinking the blood and eating the flesh of his species. Civilization has, doubtless, improved the condition and softened the manners of the white man, and law, with its brawny arm, keeps him within the pale of social order and duty; but with all his knowledge and cultivation, and all his lofty pretensions, he is a savage at his heart. Entrenched in power he withholds from his brother the natural and inalienable rights of his species; armed with authority he denies to ignorance and crime the very means of instruction and reformation; fortified with his tenure of parchment, he has even refused to the outcast—to the heart-broken penitent—to the feeble and aged saint, a spot of barren earth on which he may pour out his soul in the agony of contri-

\* Some of these topics have been treated in the North British Review, vol. iv., p. 20, and vol. v., p. 491; and in the *Physical Atlas*, so often referred to, the reader will find the temperature, pressure, currents, and polarization of the atmosphere graphically represented in Plates I., II., and V., of Meteorology, while the distribution of moisture, and the amount of rain over the globe, is represented in Plates III. and IV.

tion, or breathe a dying prayer to the God of grace and consolation. This is civilized man in his individual phase. This is the legislator decked in his little brief authority. This is the heartless miscreant wearing the Christian badge, and "doing what he wills with his own." It is not then by the arts of civilized life, or by the extension of industry or of commerce, that we can hope to reclaim and refine the savage. The process is too slow in its steps, and too superficial in its agency. It is by the more summary process of the school-master and the missionary that the red and the black man must rise to the rank, and high above it, of his white oppressor. It is by statutes which no Solon has devised—by laws which no tyrant has yielded to fear—by influences "not of man," that the outcasts of social life, now steeped in ignorance and crime, will be brought back into the fold of civilization, to rival in secular virtues its more favored occupants, if not to outstrip them in those loftier acquirements which civilization neither teaches nor appreciates.

We have thus followed Mrs. Somerville through her intellectual journey over the globe, delighted and improved by her instructions, and anxious that others should derive from them the same pleasure and advantage. From the extracts which we have made our readers will see that the work is written in a style always simple and perspicuous, often vigorous and elegant, and occasionally rising to a strain of eloquence commensurate with the lofty ideas which it clothes. In Mrs. Somerville's pages no sentiments are recorded which the Christian or the philosopher disowns. In associating life with nature—in taking cognizance of man as tenant of the earth-home which she describes, her sympathies are ever with the slave, her aspirations ever after truth secular and divine; and everywhere throughout her work we meet with just and noble sentiments, the indication and the offspring of a highly cultivated and well-balanced mind.

Anxious to promote the circulation of a work so interesting and useful, we venture to express our regret that Mrs. Somerville has not illustrated the various topics of which she treats with lithographic sketches of the general features of the earth, and of the more remarkable phenomena which she describes. The eye is a most powerful auxiliary to the mind in enabling it correctly to apprehend the phenomena of the natural world, and readers not very ardent in the pursuit of knowledge are often led to the study of what has first become interesting to them through the organs of sense. Having had the advantage of perusing Mrs. Somerville's work, with the Physical Atlas of Berghaus and Johnston before us, we cannot doubt that the value and popularity of future editions would be greatly enhanced even by illustrations on a small scale.

In several of the departments of physical geography we have noticed omissions, besides those already mentioned, which we have no doubt Mrs. Somerville will think it right to supply. The

following are a few of the subjects of a popular nature which we think require a place in a treatise on Physical Geography. The mountain avalanches of the Rigi—and of the White Mountains in New Hampshire; the descent of the glacier of Gétroz into the Dranse; the great caverns and caves in America,\* India,† Tunkin, Carniola, Hungary, and Franco; the natural ice-houses near Salisbury in America; the ice-caverns of France, Switzerland, and Russia; the transportation of erratic blocks by ice and by water; the parallel roads of Glenroy, and the raised sea-beaches of Scandinavia; the masses of meteoric iron in Brazil, Louisiana, Siberia, and Peru; the singular burning mountain of Wengen in Australia; the conflagrations in the quicksilver mines of Idria; the floating islands of Ancient and Modern History; the remarkable Lake of Cirknitz in Carniola, supplied by subterranean springs; the Lake of Ybera, described by Azara as formed by infiltration from the River Parana; the springs of inflammable gas by which some of the American villages are lighted; the subterranean sounds of Nakous, and the sounds of driven sand as described by Mr. Hugh Miller; the sounds which issue from granite rocks, the inscriptions on living trees, as described by Professor Aghard of Lund; the destruction of forests by flights of wild pigeons that darken the air by their number; the rapid changes in the quicksands of the lesser Syrtes as described by Captain Smith;—the phenomena of tornadoes and waterspouts as expounded by Mr. Redfield, General Reid, and Mr. Espy; and the Isogothermal lines of Professor Kupffer. We are aware that Mrs. Somerville was necessarily limited both in the range of her subjects and the space which could be devoted to them; but we are sure that all who have perused her work would be delighted to hear that she finds another volume necessary for the complete discussion of so popular and important a department of knowledge.

In bringing to a close our survey of the earth, brief and general as it has been, the mind cannot quit in silence the extraordinary scenes which have been presented to it. While the nations to whom such a possession has been given are yet sunk in ignorance, idolatry, and superstition, and are yielding only by imperceptible concessions to the laws which reason, and conscience, and revelation have enjoined; and while the empire of Truth and Reason—of Peace and Love, is seen only in the far distance as something to which we are making an inappreciable advance—the material world exhibits to us the same phase of transition, the same slow and measured approach to some new condition at which it is destined to arrive. The flood of life, which is now rushing from the crowded haunts of civilization in search of food or freedom, will in time spread itself over lands now preparing for its reception, and there will be no spot of earth from which the voice of gratitude and praise does

\* The Mammoth Cave, in Kentucky.

† The Cave of Booban in the Cossyah Mountains—the Phœanga Caves in Junk Ceylon and on the Martaban river.



not rise. The great features of the earth are doubtless permanently modelled. Its everlasting hills—its boundless continents—its swelling seas—and its mighty rivers, may be fixed and immutable; but its barren steppes—its interminable deserts—its wildernesses of wood and of sand, must yet smile with vegetation, and swarm with life. The diluvian wave may yet spread over arid plains the rich sediment which it bears. The volcano may yet cover with its erupted mud the very regions which it has scorched; and its lava stream may turn the irrigating current which it stems over the barren plains that have been scathed by its fires. The mighty forests on the Orinoco and the Amazons, which now wave unseen, will yet become the coalfield of generations unborn; and the mass of vegetation which annually dies among its trunks—the verdant carpet which every returning sun withers on the savannas and Llanos of the west—and the very flowers which there blush unseen, will add their tribute to the great store-house of combustion. The condor of the rock, which no eye but One has desecrated within its cleft of basalt, or upon its peak of granite; and the tiny humming-bird, whose brilliant drapery no eye has admired, will be consigned to the same mausoleum of stone, and reappear in some future age to chronicle the era of their birth.

Let not the Christian Philosopher view these anticipations as at variance with the truths which he cherishes and believes. If the inspired Historian of Creation has withheld from us the eventful chronicles of the earth previous to its occupation by man, Inspiration has been equally silent respecting the revolutions it has yet to undergo. Science has carried us back to primeval times through long cycles of the past, to disclose to us views of creation at once terrible and sublime. It is our only guide to the events of the future, and whatever may be the catastrophes which it predicts, or the secrets which it may disclose, it can teach us no other lesson than that which we have already learned—"that the earth and the works that are therein shall be burnt up," and that there shall be "a new heaven and a new earth, wherein dwelleth righteousness."

**SALE OF BOOKS.**—In the year 1511, eighteen hundred copies of Erasmus' work entitled "*Encomium Morie*" ("The Praise of Folly") were sold; and in 1527, twenty-four thousand copies of his "*Colloquies*" were disposed of. In the sixteenth century, sixty editions of the "*Orlando Furioso*" were published. It is stated that as many as eight hundred editions of the "*De Imitatione Christi*" of Thomas à Kempis have been issued. Such was the popularity of Daniel Defoe's satire, called "*The True-born Englishman*" (1708) that more than eighty thousand pirated copies of it are believed to have been sold in the streets of London. In 1732, Franklin began to publish, in America, "*Poor Richard's Almanac*," the demand for which became so great, that ten thousand copies were sold in one year—a very large number, considering the comparative paucity of readers in the new continent at

that time. Richardson's novel of "*Pamela*" met with great success, having gone through five editions in the course of a year. When Dr. Johnson's "*Rambler*" was first published, the sale seldom exceeded five hundred; and it is curious that the only paper in the series that had a prosperous sale, and may be said to have been popular, was No. 91, which Dr. Johnson did not write, but is said to have been written by Richardson. So popular were the essays published under the title of "*The Craftsman*," (1726,) written by Bolingbroke, Pulteney, and other writers, in opposition to Sir Robert Walpole's measures, that ten or twelve thousand were frequently sold on the day of publication. The first edition of M. Thiers' "*History of the Consulate and the Empire of France under Napoleon*," consisting of ten thousand copies, was exhausted in Paris on the day of publication, within the space of a few hours; and orders were soon received for six thousand copies of the second edition. Of Hannah More's religious novel, "*Cælebs in Search of a Wife*," (1809,) ten editions were sold in the year of its publication. Constable calculated that nearly fifty thousand copies of Scott's "*Lady of the Lake*" were sold in Great Britain, from the time of its first appearance, in 1810, up to the middle of 1836. The two thousand copies of the first edition of "*Marmion*" were all sold, at the rate of a guinea and a half each, in less than a month; and up to the middle of 1836, it is computed that about fifty thousand copies had been sold. In the ten years that have elapsed since this calculation was made, the aggregate number of copies sold of both these favorite poems has considerably increased. From the fact of one hundred and thirty editions of "*Hoyle on Gaming*" having been published, and only sixteen editions of "*The Whole Duty of Man*," an unfavorable estimate has been drawn of the morality of the times.

**THE CUMING COLLECTION OF SHELLS.**—It is not, perhaps, generally known, that one of the most splendid collections of shells in the world is, at this moment, in the possession of a private individual in London—Mr. Hugh Cuming. It consists of upwards of 19,000 species or well-marked varieties, from all parts of the world. Of many of the species and varieties there are several specimens; making in all about 60,000 shells, perfect in form, color, texture, &c. Professor Owen states that no public collection in Europe possesses one half the number of species of shells that are now in the Cumingian collection; and that, probably, one third the number would be the correct statement as regards the national museums in Paris and Vienna.

This collection has been made by Mr. Cuming in almost every part of the known world. "Not restricting," says Professor Owen, "his pursuits to the stores and shops of the curiosity-mongers of our sea-ports, or depending on casual opportunities of obtaining rarities by purchase, he has devoted more than thirty of the best years of his life in arduous and hazardous personal exertions—dredging, diving, wading, wandering—under the equator, and through the temperate zones, both north and south, in the Atlantic, in the Pacific, in the Indian Ocean, and the islands of the rich Archipelago—in the labor of collecting from their native seas, shores, lakes, rivers, and forests, the marine, fluviatile, and terrestrial mollusks;—60,000 of whose shelly skeletons, external and internal, are accumulated in orderly series in the cabinets with which the floors of his house now groan."

From Chambers' Journal.

## HOSPITAL FOR INFANT CRÉTINS.

THE unfortunate beings whose destiny forms the subject of this memoir, are well known to travellers in Switzerland, whose enjoyment of the beauties of that glorious country has often been clouded by the sight of what has hitherto been considered as incurable suffering. The benevolent have sighed over their degradation, the political economist has calculated the dead weight that they must prove on so poor a population, and the Christian has mourned over immortal souls, enveloped, as it were, in a chrysalis, which will open only when the cerements of the tomb shall burst.

They have existed for centuries—indeed, no one in the country knows the time when there were no crétins in the land; they have existed as an unavoidable evil, and no means had hitherto been sought to turn away so great an affliction, or modify its intensity, till one of those noble and unselfish characters, which the world sees from time to time stand forth from the crowd, rose up to help them, giving his powers of mind and energies of heart to the subject, and devoting himself entirely to the cure or amelioration of *infant crétins*.

It is now seven years since the simple-hearted and benevolent Dr. Guggenbühl founded his asylum on the heights of the Abendberg, a spot which poets and painters might choose as the scene of their reveries, and which is singularly well-calculated to supply the wants of its inmates for their physical and intellectual development. A purer air cannot exist, nor a scene of more exquisite beauty. It is an open space, three thousand five hundred feet above the level of the sea, between the lakes of Thun and Brienz, and overhanging the towns of Interlaken and Unterseen; below, the mountain is thickly covered by a fine forest, and opposite rises the giant form of the glorious Jungfrau—a sovereign among the mighty Alps. The buildings which form the hospice are extremely modest, but convenient; and on that height is to be found nearly all the necessaries of daily life. The produce of the kitchen-garden is, in general, very abundant; and Indian corn, and even other corn, grow well there. The inmates bake their own bread, and sometimes kill their own meat. Poultry and goats complete their stock.

Almost always the winter, which is severe in the valley, passes gently over the heights. Two unfailing springs of water supply them amply with baths, as well as what is wanted for household use.

In this retirement, with all the ardor with which discoveries inspire genius, and the patience and affection with which the love of his fellow-creatures has filled his heart, the young and scientific physician we have named, has resolved on spending his life, surrounded by objects for the greater part of a disgusting nature, and without companions of like education with himself, except in the valley below. Before this living example of Christian love we bow with feelings of unmingled veneration;

for, when he began his work, there were no admiring crowds to fan enthusiasm; there was everything to fear from want of funds, and little coöperation to hope for from the medical practitioners of the country. There were deep-rooted prejudices to overcome. Money never is abundant in Switzerland, and one canton takes but little interest in the institutions of another.

Once inspired with this generous determination, and prompted by scientific knowledge, Dr. Guggenbühl gave himself up to the study of the probable causes of this mysterious disorder, and of the probable means of curing it. For this, he availed himself of the researches and opinions of others, and also of what is always a sure guide—the hereditary wisdom of the inhabitants of those places where crétinism is most prevalent.

He found that from the celebrated De Saussure, down to the living physicians of Switzerland, all agreed that the disorder never showed itself *above* the height of four thousand feet on the mountains; and that children attacked by it, and immediately carried up into a purer and keener air, were sure to recover, and even to be more lively and forward on returning again into the valleys, at the approach of winter, than the other children of those parts; but also, they easily fall back again into the same state as before, and require more than one summer spent upon the heights to free them entirely from all symptoms of the disorder.

He found, also, that those who were rich enough sent their offspring away while infants to healthier spots; and that the inhabitants of Sion, in the Valais, who possess *mayens*, or pastures, and chalets on the heights, send their wives up to them to be delivered there, with the conviction that the infants so born are freer from attacks of crétinism than those born in the valleys. All these undoubted facts led him to found his establishment at the height so indicated, and in the healthiest spot possible, where the little crétins can spend the winter as well as the summer in comfort, and be not only under the care of nurses and physicians, but also under that of schoolmasters and mistresses, and so receive bodily care and intellectual instruction at the same time.

He began in the spirit of Franke, whose example he so often alludes to; and relying on the fullness of Christian benevolence to realize what he felt sure of executing, were the means obtained. His difficulties were great, and the sympathy he met with at first amongst his own countrymen next to nothing; but we cannot but regard the neighborhood of Interlaken, which in summer is filled with tourists from every country, as a most providential circumstance for the success of the rising hospital.

The first news that we received of its existence was from the graphic pen of one of the daughters of the Russian ambassador, (the Baron de Krudener,) then at Interlaken, who had accompanied the Princess Rephin on a visit to it, and who described its very infancy with enthusiasm. Some time after, the king of Wirtemberg, while resident

at Interlaken, inspected it himself, and gave substantial marks of his interest; and the scientific of all countries, as well as the philanthropic and the curious, who visit the Bernese Oberland, have spread a knowledge of its foundation throughout the continent more rapidly than otherwise could ever have been hoped for.

Nevertheless, ill-natured doubts were thrown on the facts which Dr. Guggenbühl published, and ridicule even was not wanting to dishearten and distress him. Some generous-minded persons were, however, to be found who held out a helping hand, and assisted him to put his benevolent designs in execution.

As soon as the establishment was opened, the government of Berne granted it a sum of six hundred livres; and those of Fribourg, the Valais, and St. Gall, sent crétin children to be maintained there at their expense. The king of Prussia likewise took notice of it, and ordered two children to be placed there from the principality of Neuchâtel; the Countess of Hahn Hahn, who had taken her daughter to the Abendberg, in the vain hope of effecting her cure, (but her age, sixteen, rendered it impossible,) with a most natural sympathy for others similarly afflicted, requested that a Valaisan child should be always maintained there at her expense, to be called *her child*, one succeeding the other when cured, and for which she gave the necessary funds.

Associations began then to be formed in many of the capitals of Europe, beginning with Hamburg, Amsterdam, &c.; and finally, Dr. Troxler, professor at Berne, gave the establishment the sanction of his powerful name. Subscriptions were made which have enabled Dr. Guggenbühl to extend his operations wider than he possibly could have done; and last year he ventured to add a second building to the original one, that the children might be enabled to continue their gymnastic exercises through the winter, whereas before they could only be performed in the open air. He has also added two or three rooms in the new building, which can be occupied by the parents of the children, who may wish to remain with them for a longer or a shorter time; for among the sick, whom Dr. Guggenbühl's rising reputation has brought to the Abendberg, are some of high rank, who, though not precisely crétins, were yet of that class of patients in whom the brain appears not to have been properly developed; and to these he has been of very great use. When we visited him in 1846, and fully enjoyed the sight of so much natural and moral beauty, we saw two titled little girls who had been taken to him from Germany, to die, as it was thought, but who have, on the contrary, lived and prospered under his roof.

Of the number of children hitherto admitted, one third have been sent back to their families quite cured, others more or less ameliorated, and some few have died. In general, Dr. Guggenbühl complains that they are not left long enough, and assures us that a long space of time and con-

tinued care are absolutely necessary to insure perfect success; not less, he reckons, than three years in general. Some have appeared to baffle every effort, their bodies presenting an ensemble of deformity, their tongues protruding from their mouths, their heads hanging down, their skin wrinkled like a person of eighty, their limbs dwindled to nothing, their bodies enormous, and neither sign of intelligence nor any articulate sound to be drawn from them. Even these, by his kind and judicious treatment, by unwearied care, by baths, by aromatic frictions, by electricity, by goats' milk, by exposure to the air and sun, by every means of infant development, playing, talking, laughing, by lessons with pictures, and by singing—even *these* have acquired the use of their limbs, the power of speech, the faculty of learning; and have, after a long stay on the Abendberg, been sent back as well as, and even more forward in most branches of instruction, than the generality of children of their age. Their progress is never uniform or regular, but always by fits and starts, and all at once, as if a cell were opened in their brain, or a veil withdrawn from their understanding, and that, too, when least expected. Parents and schoolmasters might learn many a useful lesson on that Alpine height, and find data which would save more than one dunce from the rod, and teach the master that he is far more to blame than the scholar.

His great principle is to strengthen the body before he attempts to develop the mind. He even goes so far as to say, that to venture on the second before the first is accomplished, is productive of the most disastrous consequences; and were his warning voice but listened to, how many victims of precocity, how many little wonders, who minister to parental self-love for a time, and then sink into mediocrity afterwards, might be saved from subsequent suffering and nervous irritability!

Dr. Guggenbühl divides crétinism into several different species:—1st, Atrophy, in which the spinal marrow has suffered mostly, and the extremities are nearly paralyzed: 2d, Raehitie, where the bones have become soft and spongy, and out of proportion: 3d, Hydrocephalie; the disorder being occasioned by water formed in the cells of the skull which ought to be occupied by the brain: 4th, Inborn, of which the germ is in the infant at its birth, and which presents any or all of the foregoing principles, and varies in intensity, from the slightly affected, down to the mass of animal matter which lies where it is placed, and can neither move nor speak. In this class are to be remarked those who have imperfect bodily growth, and the head out of proportion to the body; and also those who do not speak, yet are not deaf, but who have great difficulty in articulating, and are too lazy to attempt it.

We might give some striking extracts from the German report published by Dr. Guggenbühl in 1846, illustrative of each of these forms of crétinism; but perhaps the following case of the first-mentioned form of crétinism (atrophy) will be



considered sufficient in a non-professional journal like this:—

"L—, a little girl of six months old, was brought to us. Her mother is strong and healthy, but her father weak and scrofulous. Till she was four months old she was in good health, but weaker than children of that age generally. A violent cold was the beginning of her illness; and when brought to our house, her appearance was so wretched as to procure her the name of *the little worm* from the Princess-Royal Henrietta of Wurtemberg, during her visit to us; and truly was she so named, for she was frightful to look upon. Her body was more like a skeleton covered with skin than anything else, and that skin was cold and wrinkled. All her muscles were immovable, and the extremities of her body like miniature hands and feet. Her face was deadly white, her forehead and cheeks wrinkled like an old person's, while her black and piercing eyes had a singularly knowing look. She slept ill, her pulse was feeble, and she had no natural heat. She came to us in July; the weather was beautiful, and the keenness of our mountain air, the uninterrupted sunshine of our unclouded sky, the electricity which predominates in the atmosphere, all which have so great an influence on our invalids, were furthered by strict regimen and constant care. This delicate little creature, who so soon after her birth had begun to lose all resemblance to a human being, and that so rapidly, now made as rapid strides towards recovery. In three months' time, the deformities of her person began to disappear, her skin recovered its natural warmth, the wrinkles vanished, and her face grew young again, with the hue and the charm of infancy; and at the same time her smile, and the manner in which she took notice of those around her, showed that the faculties of her mind were awakening also. In the space of twelve months, she had lost the appearance of a little doll, and had regained that of children of her own age—proof sufficient of the efficacy of proper treatment begun without loss of time, and of the disorder being more efficaciously treated in earliest infancy than at a later period. It is now eighteen months since she left us, and we have had the happiness of learning from the Pastor Bitzius of Lutzelflück, (so well known as a popular writer,) in whose parish she is, that she continues in perfect health, and can talk and express herself well."

Dr. Guggenbühl makes a wide distinction between crétinism and idiotism, and after illustrating his ideas on the subject by the description of two brothers who are in his institution—the one crétin, the other idiot—he proceeds thus:—

"Crétinism shows itself sometimes in the physical development, and sometimes in the intellectual, and sometimes in both, and to about the same degree. It is always accompanied by some great defect in the constitution; while the intellect is, nevertheless, capable of being acted upon.

"Idiotism, on the contrary, is often found in a beautiful, well-proportioned body. It is occasioned,

without any exception, by a fault in the formation of the brain—sometimes too large—or an organization of it which excludes the possibility of any but a very slight degree of cultivation.

"Anatomical researches on the bodies of crétins have shown that the seat of the disorder is almost always in the brain. Sometimes its substance differs from that of healthy subjects by being too hard or too little; sometimes it is watery, and sometimes its fibres are flat and small, as in animals. Yet a cause still hidden from us, either before or after birth, hinders the proper development of the brain and of the spinal marrow, both so essentially necessary to the growth and the progress of the child.

"Crétinism is also closely allied to scrofula: the symptoms of the latter being often, if not always, found in crétins, and the same remedies being generally good for both. (Goitres, also, often accompany or precede it, and are sometimes enormous in old crétins.) Scrofula is frequent in the valleys, very fatal, and its effects dreadful, even where it does not kill."

Such, then, is crétinism—a disorder which is sometimes brought into the world by the unfortunate child at its birth, and which in that case has a stronger hold over the constitution than when it attacks it at a later period; but which the oftenest shows itself in the first few weeks, or months, or years, of its existence: seldom or ever after the age of seven years; and if met by a change of air and diet, by strengthening and exciting remedies, by action on the nerves, the bones, and the muscles, can be stopped short and finally cured, if taken in time after the moment when it first manifests itself, and if the treatment is continued long enough; and which can almost always be modified: thus differing entirely from idiocy, which is incurable and unmodifiable. Crétins at the highest point of the disorder never live longer than twenty-five years, and pass, as it were, at once from childhood to old age in their appearance.

They are, even in that extreme state of disgusting helplessness, the objects of tenderness and superstitious reverence in their families; according to the beneficent dispensations of a merciful God, who never permits a want in the human race without implanting a feeling in the human heart which is to lead men to minister unto it. Their heads are almost invariably larger than those of other men, and offer some singular and defective forms, through which one feature runs without exception—the depression of the forehead. Unfortunately, those prejudices which exist everywhere amongst the poor, have hitherto greatly hindered all anatomical researches in crétins, and rendered the study of the *causes* of crétinism so vague and unsatisfactory.

We will now turn to the remedies which Dr. Guggenbühl has employed with the greatest success, and which he recommends to the notice and use of the scientific world.

They are, in general, the same, with little variation; and consist in electric shocks on the head

and on the feet, given during sleep or in the bath, where generally the little patients pronounce their first distinct words; of aromatic frictions on the back, with baths of the same; of preparations of steel, bark; of the waters of Wiedegg, which are in the neighborhood; of cod-liver oil; of iodine; of juglam regia; of a diet composed of goats' milk, which is peculiarly aromatic on the mountains; of meat, some few vegetables, with the entire exclusion of potatoes; but above all, and the most important, is continual exposure to the air and sunshine—those who cannot walk being laid out on the grass to inhale the wholesome breezes of that high, pure air;\* cold baths they cannot bear. Gymnastic exercises, which require the daily use of every muscle, are also very important, and excite the children to emulation in their feats; whilst the exercise of the faculties of the mind are equally carried on in mental gymnastics, according to the powers of each little scholar. Music has been found to be a powerful aid, soothing, interesting, and refining; and we can bear witness ourselves to the thrilling effect of the voices of the happy little group, who sang to us in their infantine manner the praises of their God. Few persons, we think, could have restrained their tears while listening to that infant choir, and reflecting that but for the Christian love which has watched over them, their voices might still have uttered nothing but groans, and their souls remained ignorant of God their Maker.

Let us now turn to the difficult question—what are the causes of crétinism? and set forth the various suppositions which have been given down to the present day.

From all the observations made by Dr. Guggenbühl himself, and collected by him from others, from those also published by the different societies which have examined into it, there seems to remain no doubt that it arises from local causes affecting the state of the atmosphere in which the children are born or live. That it is necessarily hereditary, does not appear; for children of parents half crétin, or with some signs of the disease, often escape; whereas very lively and healthy persons often have crétin children, when living in a close, steamy air, in valleys where there is not a thorough renewing of the air, or where stagnant vapors remain on the sides of the hills, by the waters coming down from the heights, and being held in by a ledge of rocks or a belt of trees. We must add also the want of cleanliness and fresh air in the habitations, which are but too often devoid of a sufficient number of windows, and which are generally ornamented in front by a large dunghill, surrounded by a pool of infectious water, from which emanations exhale which must necessarily form a part of the atmosphere of the interior of the dwellings. Want of cleanliness in

their persons also—the use of fresh water being no part of their education; and lastly, the miserable food that the peasants in general live upon, consisting of salt meat at times, black bread, hard cheese, and potatoes.

What seems to justify this theory is, that along with the advancement of civilization, (the consequence of long peace,) of much travelling, of money flowing into places which formerly were never visited by strangers; in consequence also of the progress made in comfort in the houses, of cleanliness in particular, (partially introduced,) of drainage, of better roads, &c., it is certain that the very most disgusting form of crétinism has nearly disappeared. Those unfortunate beings, who could neither move, speak, nor show any sign of humanity, except its most degraded form, are scarcely now to be met with. Such were those frightful objects which the French soldiers fired at on their first entrance into Switzerland, not from cruelty, but from the horror with which they inspired them. The inhabitants have also at the same time become more active, laborious, and sober by their intercourse with other countries;\* and the great facilities of land and water carriage have introduced the produce of the colonies, and substituted a much more wholesome species of food than the indigestible cheeses, curds, salt pork, and greasy bacon, which before constituted their only nourishment.

Formerly, also, crétins but a step removed from the state we have described were unfortunately permitted by the authorities to intermarry, and thus became the parents of wretches yet more unhappy than themselves. Now, marriages amongst near relations, especially where there is any tendency to disorder, are much discouraged, as being fatal to the health of their children. We may therefore hope that, if no great pressure of misery should fall on the inhabitants of the Alpine valleys, every succeeding year may bring amongst them some of those habits which are the best preventatives of scrofula, goitre, and crétinism.

But to return to the history of the Abendburg. There have been founded two other hospices in imitation of it—the one in Wurtemberg, by a few Christian friends associated together, and which is placed under the direction of Mr. Rösch; the other in Saxony, formed by the unwearied efforts of Dr. Carus, physician to the king. In Austria, researches are making under the superintendence of the Baron de Funchtersleben, but no establishment has yet been made; and through the mountains of Caucasus inquiries are going on by the great Russian oculist, Piragoff, whose name is so well known to science. The king of Sardinia also has taken up the subject with royal munificence, and ordered an investigation of every parish.

\* It is a fact that since the opening of the route into Italy by the Simplon, the number of such wretched beings has much diminished all through the Valais. Only since then the banking up of the Rhone has taken place, and is still prosecuted by the authorities of the canton, by which the marshes, which formerly were under water on each side of the river, are drained, and formed into a fertile and salubrious country.

\* Messrs. Schublu and Buzzorini have shown by their experiments that the human lungs absorb in the mountain air a much greater quantity of oxygen than in the plain; for which reason the nervous system is more active, animal heat is stronger, and the nourishment given to the body more abundant.

throughout his dominions, which has been now at work for many months, and the report of which is expected to be published speedily.

Dr. Guggenbühl's second report, as yet only published in German, is accompanied by a very large number of letters of affection and encouragement, addressed to him from all parts of the continent by men of science, learning, philanthropy, and Christian principle, many of whom have visited the Abendburg, and give their witness to its success. They are in some instances accompanied by the diplomas of different learned societies.

It is now time to close our humble tribute to the beauty and the importance of Dr. Guggenbühl's bold undertaking in a medical, a scientific, a philanthropic, a political, and, above all, in a Christian point of view; and we can fearlessly call on all those in our own happy land, where crétinism and goitres are unknown, to whom the present and future welfare of mankind is dear, to come forward with the abundant riches with which prosperity and commerce have blessed us, so different from the scanty resources of poor revolutionized Switzerland, and help one of the noblest and the most unselfish enterprises that the age can boast of.

Let not his confidence in the sympathy and the assistance of the wise and the good of every country be disappointed, but let those who are unscathed by such afflictions build *here* an altar of thanksgiving to God!\*

*Six Dramas illustrative of German Life, from the Original of the Princess Amalie of Saxony. Parker.*

MRS. JAMESON published some years back a selection from these dramas, to illustrate the social and domestic characteristics and peculiarities of German life. We are not sorry to receive this more complete collection, which is very well translated, comprises several of the later plays, and is as agreeable reading as a new novel might be, with nothing to elevate, excite, or startle its readers, but with much to satisfy and please them.

The translator very fairly discriminates the merits of the Princess Amalie, though we cannot admit that she is superior to Miss Austen in the variety of her characters, (one of the leading merits of our charming countrywoman,) or equal to her in the combined force and minuteness of her touch. But she belongs to the same class, undoubtedly; and it is a very delightful one.

In her power of delineating character and describing scenes of common life, Princess Amalie greatly resembles our own eminent novelist, Miss Austen. She has perhaps more variety in her descriptions than the English writer, who lived in a narrower circle, and whose sphere of observation is limited chiefly to country life among the gentry of England at the beginning of the present century; while the princess takes in a wider range, extending from the nobleman's chateau and the scenes of

\*A large number of the children admitted are very poor, and many pay nothing; the benevolence of the founder preventing his turning them away from his door.

the gay capital, to the homelier life of the substantial burgher, or of the retired soldier ending his days in his native village. But, though differing in details, both are essentially *true* in their views of human nature. We have no violent contrasts or highly-colored descriptions—no startling or romantic incidents, and but little of what is generally called *broad humor*; hence, those whose taste is for *stimulants* of this kind, are apt to find both the English novelist and the German dramatist insipid; but we have in both the same minute and accurate portrait-painting, the same nice discrimination of the finer shades of character, and the same quiet humor, shown in a thousand delicate touches, which would escape a careless observer.

It will be enough that we should add the names of the plays here translated, in all which the tone of morality is pure and high, and the dramatic construction really very ingenious. They are often clever studies in the latter respect. The volume comprises the "Uninformed Girl," the "Heir of Scharfeneck," the "Irresolute Man," "Captain Firnewald," the "Son's Return," and the "Young Lady from the Country."—*Examiner*.

**A HINT TO YOUNG MEN.**—Every young man in this metropolis, if he will only attend to his business, whatever it is, and keep out of scrapes, is a rising man, and has all the prizes and honors of the nation before him, if not for himself or his children, at least for his children's children. There is no reason to complain when this is the case. We have no exclusions of race. Take any dozen men in good circumstances, either at the east or the west end of London; take them in a club in Pall-Mall, or in the Exchange, and inquire into their origin. One is an Irishman, another a Scotchman, another is a Welshman. Perhaps half of them can show a Celt in his pedigree. The same number can produce an ancestor driven to this country by the revocation of the edict of Nantes, or a foreigner of still more recent date. So much for race. As for condition, the great-grandfather of one was a laborer; of another a gentleman's butler, of another a weaver, of another a journeyman blacksmith, of another a hairdresser, and so forth. So far from the trade and commerce of London being at all a monopoly, it is notorious that nearly all the tradesmen of London, or their immediate ancestors, came from the country. In the manufacturing districts, these examples of successful industry are still more numerous. Manchester, for example, is made out of nothing. Now this state of things suits the British taste very much better than any scheme for making and keeping all men equal. The fact is, that we don't like equality. Saxons are a spreading, a stirring, an ambitious, and a conquering race. We prefer hope to enjoyment, and would rather look forward to be something better than to be always the same. Englishmen of any thought have just the same feeling about their posterity. They hope to rise in *their offspring*. They also know that they will do so, if they are steady and industrious, and train up their children as they ought to do. Every working man with two ideas in his head knows very well that it is his own fault if he does not thrive, live in a comfortable house, rented at more than £10 a year, have a little money safely invested and before many years, find himself and his family safe at least from the work-house.—*Times newspaper*



## CORRESPONDENCE.

Paris, 20th June, 1848.

"NEITHER the state of affairs, nor that of minds, is sensibly improved; far from it; and we say this from the depth of our sincere anxiety. We make it a point not to be alarmists; because what we have most at heart is the restoration of society; but we must be always, by duty, or we must aim at being, faithful echoes of the history of the day: it is a necessary alternative to repeat what is heard on all sides. Now, is there any one to be found who breathes at ease; any one who does not feel his spirit oppressed, under the present development of recent events; any one who does not lament and fret as he travels or is impelled onward without seeing, as he gropes without touching in any direction? At the début of the republic, there was a certain provision of hope in the way of consolation; hope was placed, at intervals or stages, along the arduous path which we all expected to tread. As we advanced, we greeted our relays; but they vanished as we reached them: we counted on the good sense of the public; where does it lay! We counted upon the noble passions which breathe forth in revolutionary focuses, to inspire the masses or uplift individuals; this phenomenon, however, only is to be remarked; there is no real enthusiasm in the revolution of 1848; it has but *appétites*; fine flourishes of trumpets; grand marches of patriots; yet everything is cold in comparison with the genuine fervor of the first revolutionary bursts in the last century." Thus opens the political chronicle of the number of *La Révue des deux Mondes* which was issued on the 16th inst. Your correspondent could have begun his epistle with nearly the same language. To his unfeigned sorrow, if not to his absolute disappointment, the vision of republican liberty for France recedes and fades from day to day. The peasantry, when told to cry *Vive la République!* do so; but they add—"Where is the King?" "*Vive Napoleon—Vive l'Empereur!*" has found more favor than the other; not a few of the country people believe that the man of destiny has returned from St. Helena. Yesterday, on the boulevards, I heard at several points shouts of *Vive la Garde Impériale!* which is extensively recruited, and to which a pretended Italian legion really belongs. *La Révue* observes—"The masses in the cities and the fields are sensible that, for the four months past, they have been without government, and they wish to be governed; they have voted and vociferated a name (Bonaparte) which is for them the ideal of supreme force, with a halo of glory; no proof, indeed, that they are imbued with a spirit of republicanism, but a good lesson for the republicans who administer affairs." It is perceived, too, that by liberty the peasants understand simply exemption from taxes, and the right to seize whatever they need; they take possession of private and public woods and salt-works, drive off the superintendents, and fight the national guards called to prevent their depredations. In some of the provinces, positive civil war exists, owing to intolerable grievances inflicted by the pro-

visional government, through its financial decrees. Conflicts at Guret, Nismes, Sedan, Montpellier, Toulouse, Lyons, again occupied, yesterday, two or three columns of each of the large journals. Lamartine, before the revolution, was the divinity of the region of Macon, in which are his chateau and estates. It has been necessary, of late, to defend them with a considerable armed force, against plots and attempts of devastation. His constituents are taught by the legitimists to cry, "We want *Bordeaux* wine, not *Macon!*" He is nicknamed, since the speech which I mentioned in my last letter, *Le paratonnerre de la commission exécutive*; and it is remarked, that he is too fond of playing with the thunderbolt. Mirabeau's famous oath—"We swear not to obey," has just been revived by the organs of several of the parties or factions, with reference to particular decrees likely to be passed by the assembly, and to particular provisions believed to prevail with the committee on the constitution. An able editor observes, "We live from day to day on *surprises*, and truly this regimen is pleasant enough; but we are uneasy lest the fare of the morrow should be fatal." Nearly every sitting of the national assembly is spent in the unexpected—(*l'imprévu*)—in something else than the orders of the day. Goudchaux, a banker, and an honest republican, who was appointed minister of the finances, and who speedily resigned because he dreaded the demands for the national *ateliers*, delivered on Friday a most impressive denunciation of the continuance of them, saying, "If you do not promptly dissolve them, the state will fall into a condition which I dare not depict. The ground under us is very *thin*. I have cast the lead; I could tell you the thickness; but I will not, because I do not wish to terrify you; I, however, solemnly declare to you, on my conscience, that the soil is extremely thin, and that we have no time to lose." This speaker was the chief writer and authority in the *National*, on fiscal and monetary questions.

Two of the most renowned speculative socialists, Proudhon and Pierre Leroux, evaporated, as it were, last week in the tribune, where Louis Blanc, the other apostle, had utterly and finally failed. The first entered the assembly on the Jacobin ticket, in which his atheistical and infidel writings, and his anarchical journal, *Le Représentant du Peuple*, entitled him to high grade. Besides his blasphemy, too atrocious to be quoted, and his vituperation of Christianity as "an infamous religion," his maxim, that all *property is robbery*, had given him a special prééminence in the way of Milton's Satan. At his debut before the assembly, he discovered at once that his *philosophy* (!) was abhorred by seven eighths of the body; he felt himself compelled to retract or qualify. "It is objected to me that I proclaimed property to be simply theft; I said this once, indeed, but it is not a thing to be repeated. It was employed as an engine of war; it was good for the cause of insurrection in which I was engaged—*bonne pour l'insurrection*. Now, it would serve merely to frighten honest people." Proudhon

is deemed a writer of talents, and his theories, though extravagant and intricate to the last degree, are seriously controverted in the monthly and semi-monthly sheets.

Leroux was the oracle of *La Revue Indépendante*, and the idol of Madame George Sand. Scandal went further with regard to their personal relations. Assuredly, they are worthy of each other. You must note the portraiture, nearly exact, which I send you in a newspaper paragraph, of this chief of the *enfants perdus de la république des rêves*! The wags dub him the beginning of a new Messiah, as he has designated republican France—the Christ of the nations. His figure, dress, reputation, and success in mystifying social circles and political schools, excited a lively interest; the assembly lent him close attention for some time. Although he travelled wide of the questions of the day, he was fully indulged in what is called his parenthesis on *socialism*. Most of his auditors sincerely wished to understand his philosophy; but if it even had been intelligible or definite to himself, he did not manage to render it so to them. At length they waxed impatient, and fairly baited him from the floor. He had signalized dreadful evils in the situation of things, superlative errors in the course and ideas of the executive and the assembly; and then he ascended into the clouds. One member begged the president to call the orator back to the question, because the assembly was under a severe pressure of business; another besought him to indicate the means of the *true progress* which he sounded in their ears; another said—"For the stupendous ills, on which you have dilated, suggest a remedy;" a fourth wanted from him the draft of a decree—a sanative bill—the same request was handed to him on bits of paper. The philosopher was posed; he could reply only that it was not his province; he would wait for the schemes of the ministers. Two of these—of the finances and of commerce, old radical friends and colleagues of his—handled him, as you say in America, without gloves; charged him with the want of all gentlemanly feeling and habit in his disclosures of private communications from them; and the minister of commerce, in particular—Monsieur Floccé—raised himself considerably in the opinion of the assembly, by the felicity of his sarcasms against the socialist dreamers and dogmatists in general, and by the justness of his exposition of the value of common sense and experience, and of the difficulties in the practical management of political and economical distemperature.

When the ghost of the philosopher glided from the tribune, he was succeeded by the member—(Ducloux) who is called the *Lablache* of the assembly, on account of his unequalled volume of voice, marvellously contrasted with the soft accents of Pierre Leroux. "Citizen representatives, I am not here in order to answer the new edition of transcendental socialism. The title of benefactor of humanity does not appertain to him who signalizes the griefs of humanity, but to him who knows how to cure them. It would seem,

from the acknowledgments of our apostle, that he himself, like us, is merely hunting after the truth, yet uncaught—not even descried. But there is this difference between us and him—he pursues it in theories, more or less ingenious or vague, while we, who do not pretend to the glory of apostleship, or the glory of invention, seek it painfully in the realities of social existence. I entreat the assembly to put an end to these aggressions, which carry us beyond the flaming bounds of the world." Ducloux then fulminated about the traitors who censured decrees of absolute necessity, and encouraged resistance to the laws of the republic, with their arrogant strictures, and their beatific incomprehensibilities.

On the 16th inst., the main subject in the assembly was the proper treatment or administration of Algeria. Leroux moralized and theorized concerning white settlements in the province. He adverted, with admiration, to the history of the progress of the European race in the United States. General Lamoricière answered him, with ample knowledge, certainly, of the scene of his own exploits and absolute command. The general estimated the Arab population at two millions and a half. Marshal Bugeaud believed the numbers to be nearer four millions. Now, you shall learn how the American people, so enthusiastic for the French republic, are requited by Lamoricière. He said—"Citizen Pierre Leroux observed, yesterday, that he did not wish to hear anything of the Greeks and Romans; but it is incumbent upon me to discourse of the millions of Arabs who are there—in Algeria, with their guns cocked, (*le fusil haut*), or at least, believe me, indignant (*frémissant*) under a yoke yet loose—unfastened (*encore mal assuré*.) Well, what is it proposed to do with this population? Citizen Leroux prates of America; but, in the gorgeous picture which he has exhibited to us of the occupation of America by the Anglo-American people, he has shown one side of the medal, merely; he has not turned the other. What has become of the Indians? (Sensation in the assembly.) You all know it—they have been massacred; they have been poisoned by rum and strong liquors. Thus have done the Anglo-Americans with the Indians. We do not wish to dispose of the Arabs in the same way. (Well, very well said.) Such proceedings—such means—*such crimes*, we utterly repudiate. We abjure them in the name of honor and France. (Great applause.) Yes, in the name of honor—of the honor of our country—of that mission which we are fulfilling in the world, in the name of Christianity. We mean that the noblest of God's creatures shall be respected, whatever religion they may profess. (Renewed applause.) We have studied, as well as citizen Leroux, the history of the great movements of the human race, of the mighty migrations of the vanquished. To us, the constant spectacle is that of nations conquered, crushed, ground under the ear of conquest. We are far from perceiving the philosopher's *progress*, in the calamities of the past.

Since, then, we do not purpose, nor wish, either to drive back into the deserts, or exterminate, the Arabs, or to crush them, we must admit them into account in our legislation and administrative policy. You will be obliged to retain them about or in the midst of your European colonists, and to manage accordingly." I translate the passage from the official *Moniteur*. Mark the plaudits, as if neither the general himself, nor any one of his auditory, remembered the official bulletins of the sixteen years' war in Algeria—the wasting combats—the sieges—the stormings—the devastating expeditions—the numberless *razzias*—the drivings into the sea—the stifling in caves, and the other manifold atrocities, on which so many French orators and writers have expatiated with as emphatic reprobation as Lamoricière (a chief agent in most of them) could bestow on the supposed American crimes. "You all know," said this philanthropist and zealous Christian, "what has become of the Indians." I am nearly sure that every man of them supposes the whole race extinct, except, perhaps, the Ojibbeways seen in Paris. Probably the general never read a history of the settlements of the French in North America—their wars with the Indians, particularly in Louisiana—of the fate of the Natches—of the Indian enterprises, prompted or led by the French, against the British colonists—of the share of the Canadian French in poisoning the tribes by rum, and so forth. We shall see how the Arabs will be preserved, when they come to discharge their firelocks, and struggle again to break the yoke. It was Lamoricière who gave that solemn pledge to Abd-el-Kader, in violation of which the emir remains a prisoner in France. The French Academy has just adjudged the prizes for a poem on the *conquering civilization in Algeria, la civilisation conquérante en Algérie*—a medal, worth 1500 francs, to Mr. Pommier, and one of 500 to Bignan. This is the fifth "crown" won by the latter.

Paris, 21st June, 1848.

The Bonaparte flurry was continued for two days after my letter of the 15th inst., within the assembly and out of doors. On the 15th, the executive commission were to ask explanations of the vote in favor of the claim of Louis Napoleon to be admitted to a seat. Uneasiness prevailed both on the side of the commission and the assembly—neither wishing to come to an explicit understanding. They were suddenly relieved by a letter from Louis, dated 14th, at London, in which he hazarded a sentence which raised a hurricane. "If the people impose duties on me, I shall know how to fulfil them." Cries from the floor—"That is very impertinent—that is an appeal to revolt." Nearly universal indignation. Many speakers denounced him as referring to the imperial sceptre or some dictatorship. The candidate for the presidency at least, under the constitution, was thought to be distinctly visible. The reporter from a committee, who was earnest and influential in

behalf of his claim to admission, now insisted that he should be at once proscribed. The assembly yielded at length to suggestions of postponement until the next afternoon, although warned by the commander of the national guards that, if they yielded, there would, perhaps, be a battle the next day. What occurred on the 16th, may be partly learnt, though not easily imaged in the scenes, from these paragraphs.

A number of workmen were assembled outside the chamber long before the hour of business. All along the bridge, down the quays, and on the Place de la Concorde, groups were formed, discussing the probable course which the assembly would adopt relative to Louis Napoleon. The crowd increased towards the hour when the public sitting was to commence. It would appear that the day was not expected to pass over quietly, as the national guards had been warned *à domicile* to keep themselves in readiness to come out on the first notice. No troops were posted outside the chamber, but, at the palace itself, the guard had been everywhere doubled.

Inside, great agitation was perceptible, even before the proceedings commenced. Groups were collected conversing with animation, and it was long before the members could be induced to take their places, to let the *procès-verbal* be read.

The president of the assembly took the chair at quarter past one o'clock. He announced at once an *important* communication—nothing less than another epistle of the redoubtable pretender; and lo!—besides—Bonaparte's resignation of his seat as a sacrifice to the cause of order. The restoration of calm would, he trusted, soon permit him to return to France. The news was instantly spread among the multitude in the neighborhood, and the battle thus averted. If Louis had presented himself, an emperor might have emerged. He has manœuvred skilfully, with reference to the presidency, if this be his object; every morning, however, it has been reported that the executive commission having in hands proofs of his machinations with the ateliers and the mobs, were on the watch to arrest him, and would yet obtain from the assembly a decree of outlawry. Yesterday, one of the best informed journals said—"It must not be thought, because the hubbub has subsided and the gatherings on the boulevards are intermitted, that the *Imperialist* movement is over. Quite the contrary—the game is pursued, and will soon be openly played. The deliberate stillness is the precursor of action."

Among the latest exploits of the *Voraces*, who still domineer over the city of Lyons, is that of dragging the chief justice of the superior court from his bench, and consigning him to their fortress. The project of the banquet at five sous the head, of the myriads of Paris non-working people, is resumed; the day appointed, the 14th of next month, is the anniversary of the reduction of the Bastille; in the interval, all things are more and more affected by the prospect of the sort of *fun* to be tried. If a stock-market could be pitied, it would be the *Bourse* of Paris; the bears and the bulls are alike bewildered—never sure of the executive commis-



sion for twelve hours. After the new treasury-loan of a hundred and fifty millions of francs from the Bank of France—the submitted and urged designs of the minister on all the rail-roads and fire and hail insurances, what may not come next? But the committees of the assembly do not adopt those designs; a moderate and graduated *income-tax* will, probably, find more advocates. It is known to me that, yesterday, several of the sharpest observers, moneyed and political, were exchanging their bank notes for specie, fearing that the institution would be involved more and more in the doom of the treasury. The report of M. Thiers, elected chairman of the chief financial committee, is anxiously expected. The funds of the city of Paris—some five millions of francs—which had been committed to the national exchequer—have been withheld, and complaints on this account preferred to the assembly. The municipal exchequer is so much impoverished that little can be attempted in public works, more expedient than ever for domestic tranquillity. A decree augments the duties of Octroi on various articles of food and trade, in order to “raise the wind” for the mayoralty—as if living were not already dear enough in the capital.

Another and huge political trouble looms. You are aware that a large security, called *cautionnement*, was exacted by law on the establishment of a political journal, under the late government. The law has not been abolished, but it was not enforced against the journals created after the revolution of February. It is natural for their predecessors to cry—“Return us our *cautionnements* if you exempt the others. Now we have all equal rights, and the same liabilities.” The treasury could not afford to part with the sums in deposit; the ministers confessed, in the chamber, that they deemed it right to carry the law into effect universally. Their motive was comprehended to be other besides financial. The measure of equity and duty would serve to kill two thirds of the mushroom papers, of which the license had proved extreme, and was growing incalculably dangerous. A member of the assembly, of the Mountain, has moved the abrogation of all fiscal laws touching the press; the typographers of every description are set in seditious motion; the journeymen-printers, including those of the government-offices, have combined in a fierce remonstrance in the shape of a petition to the assembly; if, they say, the law be enforced, it will “kill all the organs of the poor press—of the honest press—and assure a monopoly to the enemies of the republic.” Unless successful, they will *strike*—to a man—a serious accession to the invaders of the *pavé*. The closing paragraph is irresistible.

Citoyens, avez-vous besoin de recruter des bras pour les ateliers nationaux, anéantissez la presse par le timbre et le cautionnement, et aussitôt, compositeurs, correcteurs, imprimeurs, mécaniciens, hommes de peine, garçons de magasin, papetiers, employés de bureaux, porteurs, plieuses, brocheuses, etc., etc., viendront s’embrigader pour vous offrir leurs services et leurs talents pour les terrasse-

ments, défrichements et autres grands travaux dont le besoin se fera sentir. Puis, vous calculerez si l’impôt fourni par le timbre et le cautionnement sera suffisant pour la paye à vingt sous par jour de vos nouvelles recrues.

When we heard, in the United States, of the July revolution, 1830, I at once published my persuasion that no regular government could last in Paris, with a press unlimitedly free. What was persuasion is, now, absolute, practical conviction.

You have (enclosed) the draft, in English, of the Constitution for France, at length submitted to the assembly, and commentaries of some of the journals. The committee, of eighteen, was appointed the 19th ult.; Lamennais withdrew because his scheme was not immediately gulped. These sublimated philosophers assume infallibility for themselves, while they ridicule the pretension for any other incarnation. His seventeen colleagues are enlightened, conscientious, and patriotic men. Their month was faithfully employed. They met every day, twice, and each sitting was of four or five hours. Without a conciliatory and moderate spirit, they could have accomplished nothing. They possessed ample means of mastering foreign political history and systems—those of the United States in particular, which they chiefly followed. Cormenin, the chairman, undertook to supply the basis; he declined the task of digesting the one hundred and thirty-nine articles, and reporting the draft to the assembly. This devolved on Marrast, ex-editor of the *National*, and the present mayor of Paris. The attorney-general of Metz kept the *procès-verbal* of the sittings. We hope that it will be published, along with an *exposé des motifs*—an exposition akin to our incomparable *Federalist*.

It was on motion and argument of Cormenin, that universal suffrage in the elections, a single legislative body, and the interdict on substitution in the military service, were adopted. The rejection of a senate, or coordinate chamber for the assembly of seven hundred and fifty members, is deemed an almost fatal error, and it is not likely to be rectified by the present representatives. Three other provisions urged by Cormenin—incompatibility of legislative with executive functions, the abolition of capital punishment universally, and the maxim of non-intervention in foreign forms of government—were set aside. Several of the committee contended strenuously for a senate; a majority was not obtained, without repeated debates, for the scheme of half-legislative, half-political council of state. As to unity in the executive, or a president, no dissent arose or remained. Some members desired to exclude *generals* from the office of president. Marrast proposed the choice of president out of three candidates elected by the people.

The president, with a term of four years, is not reëligible but with an interval of four; yet we may tremble for the *republic*, when we note that a palace, and a salary of six hundred thousand francs, are assigned to him, and a regular alert army, which will scarcely be less than four hundred thousand men, subjected to his control. Moreover, the administrative centralization is main-

tained, and as the ministers will be of his choice, and depend upon him, he has here a source of immense additional power.

The revolutionary or Jacobin writers anathematize the whole scheme; the legitimists cannot tolerate it, on account of the rejection of all *hereditaryship*. Lamartine's organ, *Le Bien-Public*, criticizes, and seems generally discontent; the *National* is better pleased; the organs of Louis Napoleon are still more so, as they are confident of his success in the competition for the station of president, in which he may imitate his unambitious uncle. The world presumes that he, Lamartine, Marrast, Arago, and Caussidière, the expectant of police, will be the *distant* candidates, and that, for want of a due majority for either, the election will accrue to the assembly.

I am struck with some lack of precision and consistency in the principles and provisions of the draft. During the preparation, I received a number of curious queries and details, which I reserve for the history of the instrument. Indifference as to this or any constitution throughout the country, appears to me manifest and most unfortunate. After the utter miscarriage and demolition of ten constitutions in less than sixty years, few Frenchmen have faith in parchment. The assembly must await the deliberations of the bureaux on the draft, and cannot therefore entertain it before the 26th or 28th of this month. We may conjecture that it will undergo various modifications, without being improved on the whole. Probably, the assembly will proceed to frame organic laws. No constitution at all, is the result which too many preach, and a still greater number sorrowfully or disdainfully expect.

Paris, June 22, 1848.

Yesterday, large and animated groups of the street-statesmen were seen in the precincts of the legislative castle. Louis Napoleon had declined the post of colonel of the national guards, to which he had been elected by two battalions. His ostensible reason is an incompatibility of any military command with the function of representative of the people, to whose cause he devotes himself body and soul! His journals multiply in the provinces. To-morrow the executive government, at the call of a mouth-piece in the assembly of the clubs and the *ateliers*, is to give an account of its measures, to detect and frustrate the Bonaparte "counter-revolutionary manœuvres." A minister, in replying yesterday to the call, hinted to the clubs, that the government would be found prepared and resolved to execute the laws against all conspirators. On the exchange, it was affirmed that if the executive commission should fail in their favorite bills before the assembly, and resign in consequence, General Cavaignac, the minister of war, would be appointed president, *ad interim*, of the republic, with an able mixed cabinet, and General Changarnier commander-in-chief of the national guards.

The report of the committee on the finances,

touching the minister's exposition of ways and means, is less unfavorable than might have been apprehended. It allows him proceeds of his projects and resources, to the amount of two hundred and fifty millions of francs only, instead of five hundred and eighty, his own estimate; but the end of the year may be reached with a surplus, *on his plan*, and supposing the continuance of peace. The European diplomatic corps has been excited by the government proposition to render disposable (*mobiliser*) three hundred battalions of the national guards of the interior—a mighty array—which proposition was advocated in the bureaux, with reference to the armaments of the other powers, Russia above all. The French army of the Alps consists of fifty thousand choice troops, with abundant ammunition, and may be doubled in a trice. Two armies could be quickly thrown on the Rhine. To a request of the Sardinian envoy for explanations, the French minister of foreign affairs answers that peace is still the policy of France, but that she deems it well to take extensive *precautions*. You will remark the anti-war declarations of the British ministers at the recent lord mayor's dinner. The French government is suspected of an *arrière pensée*. In fact, it is rather mysterious on all affairs, foreign and domestic. Russia gathers immense forces, and demeans herself equivocally. There is yet much republican and socialist agitation in Germany. A democratic congress is to be held in October. The Austrians maintain themselves firmly and menacingly in the Lombard and Venetian territories. Pius IX. has recovered his popularity by sanctioning the *programmes* of his very liberal ministry. Americans, be sober and satisfied.

Paris, 27th June, 1848.

You were informed, in my letter of the 22d inst., of the gatherings of the operatives and populace during the preceding days of the week. The coming events, of higher import, cast their shadows before. They were visible enough to my mind's eye; and you must, I think, have been somewhat prepared, by my imperfect details and half-developed opinions, for a grand tragical catastrophe. This began on Friday morning, 23d, having been astonishingly matured on the side of the Jacobin and mob-conspiracy, against all existing institutions, all property, all respectable and regular existence. Insurrection, pillage, massacre, ruffian-despotism; every possible abomination of brute force, were planned and arranged on a vast scale, with a skill and audacity, and a diversity and plenitude of means, for which no match, scarcely an approximation, can be found in any city plots and conflicts known in human archives. We have just gone through scenes of battle and bloodshed not witnessed hitherto in any capital of modern times. We can record more instances of the deepest concern, of intense pathos, of admirable prowess, than are extant in the narrative of any of the longest and severest military campaign. The mass of the assailants

were impelled, as the journals truly remark, by "an infernal rage unexampled at any era of civilization." Never did the savages of New Zealand or North America, of island or continent, wage a fiercer war, with a wilder or deadlier animosity, than this French *prolétariat* on all the other classes, of their own flesh, in this population of over a million. The caution, the secrecy, the elaborate ingenuity, and extent, and variety, of their preparations, might have seemed impossible, with the demoniacal passion and impetuosity, the headlong fury and desperation of their onslaught, which did not intermit for a moment to the very end, on the fourth afternoon. The immediate pretended provocation was an official announcement of the 21st, that the *ateliers*—the national workshops—were dissolved. And you must judge of their situation, of the power which the Jacobin instigators wielded, by the following facts authentically submitted to the committee of the assembly on the labor-topic. The inscriptions for them amounted to one hundred thousand stout men and lads; the applicants at the offices of the mayors, to sixty thousand. On the 20th, all but ten thousand of the one hundred inscribed were without employment, and allowed, unavoidably, to remain at home, or to spread themselves through the capital, receiving still the pay of thirty sous each, and maintaining their divisions into brigades, duly organized. Goudehaux, one of the ablest of the revolutionary juno of the *National*, acknowledged, in the assembly, that they were at first designed as a revolutionary or republican army. They themselves understood their political and belligerent vocation; the socialists, communists, visionaries and incendiaries of every description, soon superseded the dynasty of the *National*; established a journal specially in the midst of them; and, besides, some twenty other daily sheets breathing fiendish fire, and teaching the worst anarchy, operated upon them, with the aid of abundant supplies of money lavished from quarters not yet fully exposed.

An almost universal belief was excited that the government, in dissolving the *ateliers*, and despatching a portion of the multitude into the interior, meant to exterminate the whole, chiefly by famine. On the 21st, a member of the assembly, Lagrange, a hero of former barricades, well comprehended, as a leader of the anarchists, ventured to call, in the tribune, in the name of the workmen and clubs, on the ministers for information touching the ministerial designs. Most of the members on the floor vociferated against such a delegation from bodies with which the assembly could hold no formal intercourse; but Lagrange contrived to make himself heard finally, and the ministers were so weak or traitorous as to promise to answer the call the next day. The *ateliers* were thus kept duly alert and self-important.

When the government began its task of segregating the masses, the signal for the general revolt and conflict was given. On the morning of the 23d barricades rose in the faubourgs as if by magic. It was nearly noon before the forces of

the government—though it professed or claimed to have been apprized of the plot—were brought to bear on the tactics of the insurgents. I do not undertake to relate in detail, or describe at all, military operations and particular events, which would require a very long chapter. You must adopt Galignani's record sent to you herewith. The direct, active, unceasing combatants on the side of the mob, are reckoned at thirty thousand; my calculation would reach double the number, who, at least, fought by rotation, relieving or succeeding each other. Their auxiliaries in the conveyance of information, orders, ammunition, food, and in manifold other help, to say nothing of zealous accomplices and sympathizers in the edifices on or near the scenes of their efforts, would augment the number to beyond a hundred thousand. Their advantages in point of strategy, position, concert, purpose, over the guards and soldiery, are obvious.

General Cavaignac, the minister of war, was immediately invested, as you will see, with a military dictatorship; the forces which he put in movement, or kept on foot during the entire period, could not have been less than a hundred and thirty or fifty thousand, of all arms. A march to the Rhine, a trial of strength and skill with the largest army and best commanders of a foreign foe, would have been attended, perhaps, with less exertion, evolution, solicitude, doubt, and havoc. His divisions were assigned to several of the most renowned African generals—Lamoricière, Bedeau, Négrier, Duvivier—who, we may suppose, were never, in all their enterprizes and engagements in Algeria, personally so much exposed, and so critically tried in their capacity, resolution, and various resources. There was a noble competition of valor, ardor, and perseverance between the old national guards, the new young body, the *mobile*, and the troops of the line. The red flag on the barricades, the cries from them of *Vive Barbès!* and *Down with the National Assembly!* the doctrines and exhortations of the Jacobin sheets, and the gigantic proportions which the insurrection assumed, taught the citizens that it was a final defence of their lives, families, and property; of everything valuable and sacred in life; and the generals and national assembly, that all liberty, all law, all security and dignity, all civilization, indeed, were at stake, with a sequel fatal in every respect for their country.

No one could doubt, on the second day, that if the barricaders prevailed, the capital would be ruthlessly sacked, and Barbès, Blanqui, and their fellow-prisoners at Vincennes, brought back in triumph to rule by the principles of their *programme* of the 15th ult.—dissolution of the national assembly; disarming and disbanding of the national guards; exaction of a billion of francs (two hundred millions of dollars) from the substantial classes for the pockets of the necessitous—finally the *guillotine*. On many of the flags captured from the barricades, we read *Pillage* and *Rape*. These incentives would not have been belied. As immediate instruments—as a close body-guard—the chiefs would have employed the twenty or thirty



thousand old convicts and hardened malefactors collected and marshalled in Paris, from all parts of France and Belgium, along with an almost equal number of foreign political refugees ripe for whatever service.

The reign of the new usurpers could not, indeed, be long; it may be presumed that, notwithstanding their own probable dissensions, the discords in the provinces, and the influence of Paris however circumstanced over the whole interior—a large portion of the provincial guards and of the regular army would have united to dispossess and crush them; but consummate desperadoes—hundreds of thousands—would, rather than yield on any terms, bury themselves under the capital—which they might render a stupendous and nearly impregnable fortress. We should in vain search past history for a walled defence famous or infamous by greater obstinacy, frenzy, ravage: excesses of licentiousness, cruelty and slaughter. French observers, of imposing judgment, looked, also, to similar enormities in the other large cities, and to civil war in the provinces, independently of the foreign hostilities which the pledges, aims, and offensive manifestoes and measures of the Barbès school would necessarily provoke.

The Parisians who disliked the prosecution of the scheme of conquest in Algeria, may now be grateful to it; the conflicts with the Arabs having formed those generals to whom, in a material degree, they owe their rescue from the calamities I have thus faintly sketched. Changarnier is on his way to take his seat in the assembly; for which he relinquishes his governorship. He and Lamoricière enjoy the highest renown. Cavaignac, the dictator, has discharged his trust admirably; as soon as he believed the insurrection to be quelled, he signified his readiness to lay down his power. This may be the man—the Washington—whom France needs. She can rely upon the survivors of his able and patriotic comrades, for domestic safety as well as external protection. Marshal Bugeaud is at least the equal of any in military capacity and political administration; the parties and demagogues who proscribed this conqueror are fast becoming secondary and odious; he is not yet superannuated, like Soult; his mind and frame remain energetic.

Within this month I have conversed, on the historical changes in the character and habits of the population of Paris, with three French gentlemen beyond the age of *eighty*, and a fourth near seventy, who have filled high stations in the capital and abroad, and preserved superior mental faculties. The first were well acquainted with the lower orders in 1779, '80, and '81, and the last had opportunity to know them from 1795 to 1800; and all down to a late period. They concurred in the opinion that the proportion of mere vagabonds and depredators—of idlers and culprits of every description, is far greater, (with reference to the difference in the numbers of inhabitants,) than in the beginning and first years of the first revolution; that dissoluteness of morals

and laxity of habits are more common and gross, especially among the sex. The multitude of operatives and *prolétaires* is threefold; they are more addicted to drink, concubinage and dissipation or amusement. A vast increase of manufactories, very distinct from the American, in tenantry and discipline, and of libertine publications, including the wildest democratic and anti-social doctrines, have induced a more diffusive corruption of soul and perversion of intelligence.

Although the larger part are yet illiterate, many read not only the boundless ephemeral obscenity and radicalism, but the formal histories and politico-philosophical or sophistical disquisitions—such as those of Michelet, Lamartine, Cabet, Fourier, Roux, Quinet—in which the enormities and monsters of the period between 1789 and '97 are exculpated or excused, or varnished and glorified. What they read, they contrive to communicate to the rest, by committees, clubs, and other modes of intercourse; and by a comprehensive organization unknown in former times, that begets common ideas and joint efforts, wonderfully effective from the natural French ingenuity and versatility.

In all the manufacturing centres, depravation has advanced from the same causes. Affiliation with the societies of the capital, and participation of sentiments and views, have been accomplished everywhere. Fewer (proportionably still) have any religious feeling or instruction; the children grow up in the crudest ignorance and immorality, and are cast off, when not retained for evil, or mere gain, as if sheer animals, or vultures to be fledged. Polygamy, a kind of promiscuous intercourse, has extended indefinitely. For ten years past, I have myself observed, as widely and narrowly as any other foreign resident, the working people, domestics, porters, of this capital, and have constantly read the books and tracts on popular vice and crime; and that observation and reading prepared me for the opinions I have reported above, and for the recent prodigious and awful manifestations of mob-violence and cruelty. These we now perceive to have been studied with singular acuteness, and prepared with superlative craft, and steadfast determination. I could comprehend, too, that gradually accumulated and distributed means of success and vengeance, which astonished and momentarily dismayed the national assembly, and the stoutest of the officers and guards. A representative was obstreperously reproved yesterday, for remarking in the tribune, that the national guards were struck with *stupor* on the 24th; nevertheless, you will think, it may have been so an instant, when you peruse the article sent to you, of the *Constitutionnel*, on the arrangements of the insurgents. Annexed, are some paragraphs of the same moderate journal which I translate for you, to show that my statements are not exaggerated.

We cannot yet know the extent of our losses, and we have not the courage to estimate them. They are frightful. We cannot find, in the annals

of any nation, an example of a struggle so violent and so deadly. Acts of inconceivable ferocity have been committed by these wretched beings, of whom many were, no doubt, misled; but a certain number of whom, nevertheless, yielded to their savage passions, and gave themselves up to a real licentiousness of barbarity.

We have said, and we repeat it, that the struggle which has just ended resembles in no manner other insurrections which have from time to time stained Paris. The contest then was of two political systems;—it was a war declared by the minority, against the government in possession of power; the combat was eager, but almost always loyally sustained, without perfidy or cruelty; and a useless murder roused the indignation of the public and provoked a greater reprobation than a sudden and unexpected attack. This time the red flag has been unfurled;—the mob fought crying “Long live the Social Republic!” and, as a commentary on this rallying cry, was written on many of their banners every iniquitous seduction.

Posterity will refuse to believe the tortures inflicted upon prisoners by their fellow-citizens in an age like ours, and in the capital of the country which boasts of being at the head of civilization. To judge by what the vanquished mob have done, we shudder to think what would have been the fate of Paris if this horrible enterprise had succeeded.

The Constitutionnel proceeds thus:—

Honor to those generous citizens whose zeal has not been slackened by three days of struggle—to those brave soldiers who combat side by side with the citizen, and fall in the same cause, that of society and the laws. Honor, also, to the provinces who anticipated the appeal of the great city, a prey to a sanguinary struggle, and, learning that an impious war was declared against order, comprehended that it was society which was put in danger, and wished to cooperate in the defence of the common cause. Honor to those national guards, who, in two hours after they received the news, were in march on Paris. We could wish to mention all the national guards who took part in the patriotic invasion of the capital. We could have wished that their assistance had been useless, or that they had only had to relieve the Parisian force in its constant surveillance of the capital. But the blood of the provincials has been shed, and has mingled with that of the Parisians, and many of them, on returning to their home, will have to convey tidings of mourning and of affliction.

And it may be well to copy likewise, the testimony of so respectable a journal as the *Siècle*.

It is not a combat, it is a war, an implacable and terrible war, that has been carried on for the last three days. Who, then, has excited this hatred, this madness, in the hearts of so many unfortunate men? Who has been able to persuade them, either that the government which they have themselves created wished to reduce them to starvation, or that they would find prosperity and abundance in the ruin of society? But there can be no illusion; it is a question of existence for the country and of salvation for civilization which is connected with this murderous struggle. If the national guard of Paris had less vigorously defended itself, if it had not also been bravely seconded by the garde mobile, by the army, and by those detachments of brave

men which were sent by the national guards of the adjacent towns to the assistance of the capital, France would have fallen into a frightful state of anarchy, from which perhaps she would never again have risen.

Paris, 28th June, 1848.

Cities under the scourge of pestilence, are affecting described in ancient and modern narratives—in verse and prose—in the drama and the romance—from the pages of the Greek historian to those of the American novelist. So have we numberless and harrowing accounts of stormings and sackings by foreign foes, savage and obdurate from international hate, and the admitted, though spurious, “rites of war.” But the aspects and events of fratricide, during more than half a week, between masses of hundreds of thousands, within the same community, in a splendid metropolis, usually the brightest and gayest in the world, remained to defy the pencil and pallet of all ordinary artists. The plague, or the yellow fever, is silence, desolation, and death; but here, with the latter, reigned the wildest complicated uproar; not ghastly disease—but consternation at every door and window—unremitting, breathless expectation; agony weltering in gore; uncertainty about issues which involved endurance or escape of the fellest outrages, spoliation, and tyranny possible in civilized society. When law martial was proclaimed here, and the necessary regulations for clearing the streets, and keeping non-combatants at home were enforced, a contrast, profoundly impressive of emptiness and distress, struck every one who obtained permission to pass; every shop and gateway closed and barred; females of every age, and respectable appearance, at the windows and the doors, awaiting, in tears or with countenances of dread, intelligence of the fate of their relatives or friends, and of the progress and transactions on the battle-grounds. What was reported or done in the national assembly became, likewise, of the liveliest and universal interest. The ladies, in every quarter, suffered to remain on the pavements, making lint and bandages for the wounded, and the passage, in constant succession, and in every direction, of *brancards*, litters, and light vehicles of every sort, laden with victims, and invariably saluted by the military bodies, as a tender and melancholy homage to the mutilated, and the dead, and the cause—these are traits which are never to be forgotten by any spectator.

It is long since the churches were visited by so many afflicted women and children, and old men turned suddenly devout, as on Sunday, the 25th, the crisis of the struggle in the faubourgs. The humble prostrated themselves on the flag-stones, the remainder humbly and dejectedly knelt; the officiating clergy wept, sobs and groans issued from the side-chapels. The *archbishop* went, in the evening, on an errand of peace and conciliation, to a barricade of the Rue St. Antoine. He was there mortally wound-

ed by a ball, discharged from a window, and by an insurgent; though a Catholic prelate in the assembly—the Bishop of Langres, a celebrated polemic and implacable legitimist—wished to make it doubtful, at least, whether the fatal shot was not from a national guard. You have a touching narrative of this mission and catastrophe, in an article of the journal *L'Univers*. I do not remember a sensation of woe and horror at all equal to that which the intelligence produced, wherever it reached, except in the case of the Duke of Orleans, the eldest son of Louis Philippe—the hope of the liberals of the nation. The primate and martyr is dead; and he expired as became his exemplary life. He was in the highest vigor of a strong constitution and a strong intellect. He had piety, learning, energy, suavity—a truly evangelical spirit, with the demeanor and knowledge of a man of the world. This single incident must move the best part of the nation, and the peasantry, even, of many of the provinces, and inspire hatred for civil strife, more, perhaps, than the havoc of life en masse, and the fresh fact of the gathering twelve thousand corpses already from the *arenæ*.

The number of prisoners taken in arms, is reported, this day, at six thousand five hundred. They are closely examined by the magistrates. They expected to be shot by decision of a council of war. The assembly has decreed that the leaders—the foremost and particularly intelligent and active—shall be thus distinguished; the rest to be deported beyond seas. On the capitulation of the most pertinacious bands, on Monday, and the occupation of their main fortresses in the Faubourg St. Antoine, twenty or thirty thousand are supposed to have escaped, with their arms, into the plains, woods, and villages of the environs of the capital. Many were overtaken and cut down by squadrons of cavalry, despatched in pursuit. Multitudes are hidden in the narrow streets and countless dens of the faubourgs. The villages undergo domiciliary visits; the forests are scoured by horse and foot. It appears to me to be fine sport for the dragoons and younger guards. I witnessed it yesterday, morning and evening, at St. Germain, in the vast forest of which scores of captures were made. On my arrival, on Monday evening, at the rail-road station, I found a piquet at the door, who seized five of the top-passengers. These men proved to be insurgents, with pockets not empty. Their exterior was wretched. In my early walk, yesterday, in the grove near the terrace, I was struck with the squalid and haggard appearance of seven adults and lads, on their backs on the grass, in profound sleep, their faces upwards. Their visages and lips blackened from powder, their limbs bruised, blotched, and scarified, and their absolute stupor, gave evidence of their recent occupation. They fell, I presume, into the hands of the authorities. In the evening, I saw nine, in similar plight, brought to the jail near the station, by three mounted *gens d'armes*. What a generation to found a republic, social and

democratic! It is ascertained that they had organized and *personced* a government of equality and *fraternity*. Cain will be no longer the proverbial brotherhood. Police and prison brands have been discovered on the shoulders of hundreds of these patriots and philanthropists. The insurgents contrived to carry off, or hide, a large portion of their killed and wounded. Some of their flags bore the instruction, "If victors—pillage; if vanquished—*conflagration*." Materials and processes were distributed in every section.

Yesterday evening, on the terrace of St. Germain, two captains of the garrison, just returned from aid-de-camp service in the midst of the struggle in Paris, expressed to me their conjecture that General Cavaignac had upwards of two hundred thousand men on foot—perhaps two hundred and fifty thousand; and that a hundred and fifty thousand persons were engaged actively in the business of insurrection—scarcely less than four hundred thousand, if not more, enraged grapplers. Two battalions of guards, that had been officered by Jacobin oracles, and evinced lukewarmness, or a spirit of defection, have been disarmed. On the 27th, ten thousand provincial guards, altogether, arrived; this day, several corps, from the distance of eighty leagues, are announced—some hundreds without arms, such was their dauntless zeal. At seven o'clock, this morning, the whole of these volunteers were reviewed by the national assembly. The number of principal barricades exceeded a hundred—some, master-pieces of *fortification*. By their decree, creating the dictatorship, the assembly eliminated the executive commission. It was proposed to dismiss them textually; but members exclaimed: *No spite, no spite*—they are nullified *ipso facto*. They, however, formally and decorously resigned, and this riddance was hailed by the troops of every denomination, and the sound public, with joyful plaudits. Lamartine may remember Cardinal Wolsey's farewell to his greatness.

Paris, 29th June, 1848.

The weather of this month has been, on the whole, cool and pleasant—wet, indeed, at intervals, eight or ten days. On Saturday afternoon, while the battle raged, a tempest of rain, such as had not been experienced for twenty years, aggravated its terrors. Yesterday was quiet—mournful, because the authorities and families were transporting the dead to the cemeteries. On the boulevards, at every corner, the spectators stood uncovered as funerals proceeded. What a multitude of widows and orphans suddenly made! The breasts of many of the slaughtered officers of the guards and the line were found with fresh flowers on them, deposited by affectionate or religious females. Sisters of the religious orders roamed everywhere, giving aid, dressing wounds. The priests mingled, alike, with the combatants, exercising their sacred ministry in behalf of both parties. At the three hours' review of the provincial guards, a crowd of country curates was perceived



among them, who had come to perform the last rites if needed. Nearly all the sisters of charity from the adjacent departments have arrived with loads of lint, linen, cataplasms, anodynes. The clergy visit the reprobate prisoners; and ten or twelve have demanded the privilege of accompanying, for pious ends, those who are to be deported to Oceania. All this seems better than the pantheism, socialism, atheism, with which the *ateliers* were plied for their perdition in this and the next world.

Thirty wagons, laden with captured guns, descended the boulevards yesterday. It was a strange spectacle, added to the slow trains of biers, hearses of every structure, that of soldiery, all along, dozing on straw, or cooking their coarse victuals, or cleaning their arms. The force of discipline and habit, on the part of these gallant men, was manifested in their immediate reforming or reorganization, as they rose in the centre of the barricades into which they dragged themselves prostrate, or crept on their hands and knees. Both guards and troops, in the Faubourg du Temple, entered the streets behind the barricades through apertures made by sapping. An officer conceived the idea of piercing holes through the houses, and thus passing from one to another; it was pursued with the happiest success; the troops got, thus, above the barricades, and dislodged the insurgents by a plunging fire—*feu plongeant*—from the windows. The common sewers were used as passages into the barricaded streets.

Old Arago, the astronomer, led several charges. Lamartine paraded on horseback, accompanied by Caussidière, (the traitor ex-prefect,) seeking, as he told the assembly—*glory!* His colleagues, or rather one of them, the mayor of Paris, and three of the ministers, behaved, near the places of conflict, and spoke in the assembly, more like accomplices than adversaries of the insurrection. Ere long, they will all be completely unmasked. In the sitting of the 27th, Caussidière, and La Rochejaquelein, (the legitimist,) betrayed themselves abundantly—the former by an audacious apology for the mob. Both were hooted from the tribune. General Lebreton, an honest, rough warrior, who commanded one of Cavaignac's stations, told the house—"Our country has not yet escaped from danger: there *exists* a vast conspiracy; and you will soon have the irrefragable proofs." Grounds are not wanting for the allegation that much of the money in the hands of the insurgents went from the ministries of the treasury and the interior, and some from the legitimists and the Orleanist conservatives. We may believe that Louis Napoleon early contributed a portion. As for *foreign* gold, I am utterly incredulous. The Emperor of Russia had lost enough by his speculation of fifty millions of francs in the French funds. The British government would hardly play so *foolish* a game as that of assisting to consign Paris to a Jacobin faction, thus furnishing encouragement to its own

chartists and its hordes of operatives. It is true that the victory here of the rulers and citizens must serve to strengthen the cause of order on the other side of the channel. The atrocity of the plans, devices, and deeds of our barricaders admonishes London in particular—all the great cities of the civilized world. We are aghast when we think of their chances—their near approach to success; how they were trained, guided, provided, and connected. The conspiracy must have been commenced by their adroit prompters and managers soon after the revolution of February. The results of that triumph quickly disappointed and incensed the cupidity and ferociousness of the ultra-radical allies and instruments of the confederacy of the *National* and *La Reforme*. More of the new mysteries of Paris, anon.

Ex-Dictator Cavaignac answered, yesterday, to an old comrade who congratulated him on his triumph—"Yes; but, without our *African* fellows, we should have been dished." Of his ten generals, seven were wounded, two of them mortally. Two horses were killed under Lamoricière. In no battle of the empire were, proportionably, so many superior officers lost; nor so many men put *hors de combat* in attacking a fortress or redoubt. Marshal Bugeaud is called by telegraph to Paris, and on his way. Changarnier arrived, yesterday, from Algeria, and takes the supreme command of the national guards. The *Journal des Debats*, of this morning, remarks—"Never was so much French blood shed at one time by Frenchmen." None of the seven thousand students sided with the insurgents. Hundreds of these desperadoes penetrated into the catacombs under the Faubourg St. Jaques, and must there perish by famine. Thousands of *possessed* females—not a few well clad—sacrificed or exposed themselves in aid of the insurrection. They severed, with knives, heads and limbs of living guards; carried them on the points of sabres; sold poisoned beverages to the thirsty soldiers protecting the assembly; rivalled in every way the furies wrought into heroines by Lamartine in his History. They carried cartridges under their clothes, in their bosoms, in baskets disguised, in seeming loaves of bread, in their hair pressed by caps and bonnets. The prostitutes had been drilled as spies and scouts; they were indefatigable sutlers and messengers, and bore away, in bands, the disabled and killed of the barricades to which they were attached.

Bedeau is appointed governor of Paris: he is the most scientific of the African school or nursery. Oudinot appeared yesterday in the assembly, and tendered his army of the Alps. The fervid greeting of these commanders by that body of representatives indicates where their hopes are placed. They have created Cavaignac president of the council, a nondescript executive, with undefined powers, and the choice of his own ministry. Thiers, Dupin, and Remusat voted eagerly for this measure, the dictatorship having been positively resigned. Here is the list:—

Présidence du conseil . . . Général Cavaignac.  
 Affaires étrangères . . . M. Bastide.  
 Finances . . . M. Goudchaux.  
 Intérieur . . . M. Senard.  
 Justice . . . M. Bethmont.  
 Commerce . . . M. Tourrette.  
 Travaux publics . . . M. Recurt.  
 Guerre . . . Général Lamoricière.  
 Marine . . . Amiral Leblanc.  
 Instruction publique . . . M. Carnot.

The names of *Carnot* and *Recurt*, offenders under the provisional government, excited murmurs—almost groans. *Bastide* does not enjoy favor. *Senard*, an able man, will be replaced as speaker by *Marie* or *Dufaure*. The cabinet is strong only in the departments of war and the interior. *Lamartine* was deemed entirely *unavailable*. The emotion in the provinces is beyond language. They despatch their guards and garrisons without stint, and deserve from the capital a better return than they will obtain.

Papers enclosed by our Correspondent.

NATIONAL ASSEMBLY. PERMANENT SITTING,  
 JUNE 24.

The measures taken for the defence of the chamber were of the most efficient description. A large body of dragoons and cuirassiers was on the Place de la Concorde, with a regiment of the line, and a considerable party of the Garde Mobile. The horses and men of the cavalry regiments appeared fatigued, having, part of them, been on duty all night, whilst the cuirassiers had only arrived that morning in Paris. Many of the men were lying about on the flagstones, trying to snatch half an hour's sleep. On the bridge, a body of dragoons were also posted, whilst in front of it were two batteries of cannon. Down the quays, the forces appeared interminable, particularly towards the Invalides; and a considerable train of artillery were in waiting, ready to move at a moment's notice. Round the chamber the forces were also exceedingly numerous.

Inside, all was agitation. Not more than 20 persons were in the public tribune; the danger appearing too imminent to allow curiosity to overmaster apprehension. About half-a-dozen ladies were present.

The following interesting account of the arrangements of the insurgents, and the proceedings of the armed force, is given by the *Constitutionnel*:—

On Saturday morning the *émeute* was at its greatest period of progress; each new barricade became a point d'appui for the establishment of others, and the insurrection, constantly enlarging itself in the quarters of which it had taken possession, would have finished by including the entire city, and surrounding the defenders of the National Assembly. At this moment it became indispensable to drive the insurgents to particular points. To check the insurrection, and isolate its two principal branches, was the work of Saturday. By the close of the day all communication was cut off between the Clos St. Lazare and the Faubourg St. Antoine; and also between this faubourg and the Faubourg St. Jacques. In the course of the evening the last barricades of the Quartier Saint Marceau and the

left bank of the Seine were entirely cleared. Yesterday, on the right bank, a certain number of insurgents occupied a few barricades which had not been attacked as they were isolated. They were carried in the course of yesterday. There remained the Quartier Saint Antoine, the Faubourg Saint Antoine, the Clos Saint Lazare. In the Faubourg Saint Antoine the insurrection had had two entire days to organize and fortify itself. It had for its first line of defence the canal and the river, and thus prevented attack, except from a few points. The first rows of houses were occupied by the insurgents, and the entrances of all the streets were barricaded. From several quarters looking over the faubourg individuals could be seen giving orders which were immediately executed by bodies of the insurgents at different points. It was easy to perceive that they were formed into brigades and acted in concert. The insurgents had taken possession of the Pont d'Austerlitz, at each end of which they had constructed a barricade. This was also the case with the Place Walhubert, facing the Jardin des Plantes. These arrangements were made to prevent troops from crossing the Seine, and attacking the Faubourg Saint Antoine at its weakest point. Across the canal St. Martin to the environs of the Grenier d'Abondance the insurgents had taken possession of the barracks of the Célestins, also destined to serve as outworks, and the Pont de Damiette, which connects the Quai des Célestins with the Ile St. Louis, the Place Royale being at the same time in their power. The works extended along the Quais and the small parallel streets, the Rue St. Antoine, as far as the Mairie of the 9th arrondissement and the Rue Geoffroy-l'Asnien, at a very short distance from the Hôtel-de-Ville, thus forming a triangle, the base of which was the Canal St. Martin. The Clos St. Lazare had also become a real fortress; the Church St. Vincent of Paul on the right, the Custom-house on the left, were its outworks; but instead of seeking to penetrate into the interior of the town, and to reach the line of the Boulevards, the insurrection seemed to have adopted the outer wall as a basis of operations. This wall had been pierced with loop-holes all along; and behind every loop-hole groups of insurgents were stationed; patrols and signals permitted them to concentrate their forces, and to combine their efforts. Still in possession of several barricades, they were in immediate relation with La Villette, St. Denis, and Montmartre, where their forces held in check the national guards of the environs, who were arriving to succor Paris. This description shows that the insurrection, driven from the heart of the city, was concentrated in two suburbs, contained within narrow limits, and by them transformed into two fortresses. Two sieges were, therefore, requisite; it now became useless to take the barricades in front and by assault; and the troops of the line could now give way to the artillery, the sappers and miners, now the principal actors. Whilst the cannon levelled the barricades, the sappers made an opening through the houses, to let the troops penetrate to the insurgents, or attack them in their rear, and often to turn their own barricades against them. This method, though slow, was certain in its operation, and saved much bloodshed. The church of St. Vincent de Paul was taken on Sunday morning. At 1 P. M., General Lamoricière was the first to enter into the buildings of the Custom-house, the gates of which had been demolished by cannon. Howitzers swept the Clos St. Lazare; and the troops, in their ever

progressive march, cut the insurrection in two, repulsing it on one side towards Montmartre, on the other towards La Villette and the Faubourg du Temple. The barriers were soon reached, and the communications reopened between St. Denis and Montmartre, the national guards of which places, delivered at length from intense anxiety, were enabled to offer their services to the republic. La Chapelle, Montmartre, and La Villette, were entirely disengaged.

When the insurgents of the Faubourg du Temple sent to General Lamoricière, to treat on the conditions of surrender, the general, who was in a café answered by reading the proclamation of General Cavaignac, and by stating that the insurgents must surrender at discretion, adding that the army and national guard were well supplied with powder and shot. "So are we too," said the delegate of the insurgents, a young man, who did not deign to take off his hat; and, as he stood, he turned on his heel, and went away.

At the barrier Rochechouart the insurgents had, it is asserted, a quantity of vitriol, with a fire-engine, to throw it into the faces of their assailants.

The *Univers* gives the following relative to the mission which the Archbishop of Paris took on himself to fulfil with regard to the insurgents:—

On Sunday evening the prelate, accompanied by two of his vicars-general, proceeded by the Rue St. Antoine to the Place de la Bastille, where the combat still continued. The welcome which he had received from General Cavaignac was but a prelude to what he met with in the places near the scene of the combat. His resolution was praised; he was surrounded by citizens, soldiers, and women, who fell on their knees, and were unanimous in calling down blessings on the head of the envoy of God, and in imploring his benediction. Some among them, more prudent than the rest, represented to him the danger, perhaps useless, which he would incur. His reply was, "It is my duty to offer up my life;" and he was heard to frequently repeat to himself—"Bonus autem pastor dat vitam suam pro ovibus suis." On his route he entered several of the ambulances, giving his blessing and absolution to the wounded. On reaching the scene of combat, which was then going on with great severity, he asked the colonel who was in command whether it was not possible to stop his fire for a few moments; he hoped by such a plan that that of the insurgents would also be suspended, and that during this temporary truce he might make himself known and come to a parley with them. The colonel, admiring the feeling of the archbishop, yielded to his request, and the anticipations of the prelate were realized, for the firing ceased simultaneously on both sides. The insurgents mounted on the top of their barricade, and held the butt-ends of their muskets in the air. The archbishop and his two vicars-general, M. Jacquemet and M. Ravinet, advanced towards the barricade. One man alone, dressed in a blouse, preceded him, carrying a branch of a tree in his hand as a mark of conciliation.

The insurgents, on their part, descended from their barricade, some of them appearing pacifically inclined, and others with menace in their features and in their language. By a zeal which can readily be understood, the combatants on the side of order

could not reconcile it to themselves to see the archbishop thus exposed to the rage of men who had on that very day murdered some persons who had been sent to parley with them. They therefore neglected the request of the prelate, and advanced, and were thus face to face with their enemies. Reproaches and threats were exchanged, and personal struggles took place, the disastrous consequences of which the ecclesiastic sought to prevent in the name of religion, and of the pontiff who came there to stop the effusion of blood, to save those who had taken up arms, and their wives and children. During these altercations, which for some time delayed the accomplishment of the holy mission, a musket was fired, but it is not known on which side, or whether it was by accident or intentionally. In an instant a cry of "Treason, treason!" arose on all sides; the combatants retired, and the firing became more severe than ever. The worthy archbishop was thus placed between two fires; he showed no alarm—he never thought of escaping to the right or left. He advanced towards the barricade, and still accompanied by his vicars-general he mounted it and reached the summit. He was thus in view of both parties. The balls whistled round him, but at this time appeared to respect him. One of his attendants had three balls through his hat. The mediator showed himself, and what voice could be more eloquent than this heroic apparition! What thanks ought to fall on the heart of the pontiff, thus offering and giving his blood and his life for the people entrusted to his care! What glory also both for him and for the faith which inspires it! But his sacrifice was to be completed. He came down from the Calvary where death had spared him, and had scarcely descended a few steps, when he fell, pierced in the loins by a ball which appeared to have come from a window at the side. A faithful servant who followed him, unknown to his master, endeavored to catch him in his arms, but was himself wounded in the side.

Let us, however, render justice to every one; the insurgents ran to his assistance, and carried him to the Hospital of the Quinze Vingts, and placed a guard over him. They procured the signatures of all present to attest that he was not shot by the persons to whom he had first spoken, and they appeared very anxious to have this point clearly stated. The news of the event soon spread through the faubourg, and produced an extraordinary sensation. In an hour afterwards the firing ceased, not to recommence. The Christian calmness and serenity which induced and sustained the conduct of the archbishop never left him. On his vicar-general, M. Jacquemet, rejoining him, the archbishop begged him, as a friend, to tell him what he thought of his condition. "Is my wound serious?" "It is very much so." "Is my life in danger?" "It is." "Well then," replied the archbishop, "let God be praised, and may he accept the sacrifice which I again offer him for the salvation of this misguided people. May my death expiate the sins which I have committed during my episcopacy." He afterwards confessed, and received the sacrament of extreme unction, preserving throughout his severe sufferings all his presence of mind, and expressing a satisfaction full of simplicity and grandeur at having accomplished what he called his duty. "Life is so short," he often repeated, "and the term which still remained to me could have been but short; I have sacrificed little for God, for the men created in his image, and repurchased with his blood." On Monday morning he was carried to his palace, and as he passed through the streets the



people all fell on their knees with a feeling of veneration. He was escorted to his residence by a party of the Garde Mobile. The countenance of one of those gallant youths particularly struck him as he had seen him fighting, and after having received a wound in the head, wrest a sabre from the hand of his assailant. He beckoned him to approach, and having still strength enough to raise his arms, he detached a small crucifix which he wore suspended round his neck, and gave it to the young hero, saying—"Never part with this cross—place it near your heart, it will bring you happiness." The young man, whose name is François Delavignère, of the 7th company of the 4th battalion, joined his hands in an attitude of prayer, and swore to preserve forever the precious souvenir of the venerable dying prelate. The pain he suffers is still very severe; the ball has not been extracted, and his medical attendants have little hopes of his life.

We learn that at one o'clock this morning the Right Rev. Prelate still retained possession of his faculties, and bore his sufferings with a fortitude which virtue and Christianity alone can bestow, but no hope remained of his surviving beyond a few hours.

**PRACTICAL VALUE OF SCIENCE.**—Many ignorant despisers of systematic natural history reproach us with wasting our time on nomenclature, or in watching and describing the metamorphoses and general economy of insects; and contend that it is only from what they call "practical" men—that is to say, farmers and gardeners—that effective means of destroying noxious species—one of the main objects of entomology, taken in its widest scope—can be looked for. Such objectors should be referred to a paper read by M. Guérin-Ménéville to the Royal Academy of Sciences at Paris, in January, 1847, from which it appeared that while the cultivators of the olive in the south of France—who, in two years out of three, lost oil to the amount of nearly 6,000,000 of francs annually by the attacks on their olives of the grub of a little fly (*Dacus oleæ*)—were utterly unable, with all their "practical" skill, to help themselves in any shape, M. Guérin-Ménéville, though no cultivator, applying his entomological knowledge of the genus and species of the insect, and of its peculiar economy, to the case, advised that the olives should be gathered and crushed much earlier than usual, and before the grubs had had time to eat the greater part of the pulp of the fruit; and by their adoption of this simple plan, the proprietors of olives in the years they are attacked by the *dacus*, can now obtain an increased annual produce of oil, equal in value to £240,000, which was formerly lost, in consequence of their allowing the grubs to go on eating the olives till they dropped from the tree.—*Mr. Spence's Address to the Entom. Society, January, 1848.*

From the N. Y. Commercial Advertiser.

## NOTICES OF BOOKS.

*Harold, the Last of the Saxon Kings.* By Sir E. BULWER LYTTON. New York: Harper & Brothers.

THIS is a new romance of Bulwer's, founded on the great event which determined the character and destinies of the British Empire—the contest between the Saxons and William the Norman, at Hastings.

The opposing characters of William and Harold—representatives of their respective races—of Edward the Confessor, of Hilda the prophetess, and of the fair Edith, are vividly delineated, and the book is a highly wrought historical romance—a picture of life in the olden times. The historical and philosophical portions of the work are in keeping with the writer's reputation.

*A First Book in Spanish.* By JOSEPH SALKELD. New York: Harper & Brothers.

MR. SALKELD is already known to the literary world by his "Compendium of Classical Antiquities." His present work contains full instructions in pronunciation, a grammar, exercises on the Ollendorff method of constant imitation and repetition, reading lessons and a vocabulary—all, in fact, that is requisite for the student. It seems easy, lucid, and attractive in style, as well as in all respects adapted to its purpose, combining the advantages of recent improvements, from the best foreign writers, enriched with much original matter.

*Chambers' Miscellany.* Boston: Gould, Kendall & Lincoln. Part 22.

LIKE every former number it combines varieties of literature, and will please all who desire general and sound information.

*Mary Grover; or, the Trusting Wife.* A Temperance Tale. By CHARLES BURDETT. New York: Harper & Brothers.

THE lessons suggested by this story are given with good effect. Illustrated by the touching details of the narrative they will produce the happiest results.

*Notes on James, Jude, Peter and John.* By ALBERT BARNES. New York: Harper & Brothers.

THIS new volume of Mr. Barnes' admirable series of notes on the New Testament completes, we believe, the design of the author. Annexed to the present volume we observe a long string of testimonials from distinguished clergymen of Great Britain, assigning a high order of merit to these familiar and ably condensed commentaries. For purposes of private study of the sacred Scriptures, as well as for use in Sunday schools, &c., they cannot be too warmly commended to the religious public.

*Kings and Queens; or Life in the Palace.* By JOHN S. C. ABBOTT. New York: Harper & Brothers.

Among the royal persons portrayed in this agreeable work, we find Josephine, Maria Louisa, Louis Philippe, Ferdinand of Austria, Nicholas, Leopold, Isabella and Victoria—names that carry with them a world of interest. Of these materials, Mr. Abbott, though presenting little that was not already known, has made an agreeable, readable book. The manner of treating his facts is unique, the author giving prominence to the personal characteristics of his subjects, or in other words depicting, so far as could be expected, "Life in the Palace." The book is likely to be popular, among young people especially.

*The Dying Robin, and other Tales,* by JOSEPH ALDEN, D. D.

A neat little volume of domestic sketches suitable for family reading. Like all the author's juvenile series, the present collection seems adapted to convey good instruction as well as amusement. Harper and Brothers are the publishers.

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**PROSPECTUS.**—This work is conducted in the spirit of Littell's Museum of Foreign Literature, (which was favorably received by the public for twenty years,) but as it is twice as large, and appears so often, we not only give spirit and freshness to it by many things which were excluded by a month's delay, but while thus extending our scope and gathering a greater and more attractive variety, are able so to increase the solid and substantial part of our literary, historical, and political harvest, as fully to satisfy the wants of the American reader.

The elaborate and stately Essays of the *Edinburgh Quarterly*, and other Reviews; and Blackwood's noble criticisms on Poetry, his keen political Commentaries, highly wrought Tales, and vivid descriptions of rural and mountain Scenery; and the contributions to Literature, History, and Common Life, by the sagacious *Spectator*, the sparkling *Examiner*, the judicious *Athenaeum*, the busy and industrious *Literary Gazette*, the sensible and comprehensive *Britannia*, the sober and respectable *Christian Observer*; these are intermixed with the Military and Naval reminiscences of the *United Service*, and with the best articles of the *Dublin University*, *New Monthly*, *Fraser's*, *Tail's*, *Ainsworth's*, *Hood's*, and *Sporting Magazines*, and of *Chamber's* admirable *Journal*. We do not consider it beneath our dignity to borrow wit and wisdom from *Punch*; and, when we think it good enough, make use of the thunder of *The Times*. We shall increase our variety by importations from the continent of Europe, and from the new growth of the British colonies.

The steamship has brought Europe, Asia, and Africa, into our neighborhood; and will greatly multiply our connections, as Merchants, Travellers, and Politicians, with all parts of the world; so that much more than ever it

now becomes every intelligent American to be informed of the condition and changes of foreign countries. And this not only because of their nearer connection with ourselves, but because the nations seem to be hastening through a rapid process of change, to some new state of things, which the merely political prophet cannot compute or foresee.

Geographical Discoveries, the progress of Colonization, (which is extending over the whole world,) and Voyages and Travels, will be favorite matter for our selections; and, in general, we shall systematically and very fully acquaint our readers with the great department of Foreign affairs, without entirely neglecting our own.

While we aspire to make the *Living Age* desirable to all who wish to keep themselves informed of the rapid progress of the movement—to Statesmen, Divines, Lawyers, and Physicians—to men of business and men of leisure—it is still a stronger object to make it attractive and useful to their Wives and Children. We believe that we can thus do some good in our day and generation; and hope to make the work indispensable in every well-informed family. We say *indispensable*, because in this day of cheap literature it is not possible to guard against the influx of what is bad in taste and vicious in morals, in any other way than by furnishing a sufficient supply of a healthy character. The mental and moral appetite must be gratified.

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WASHINGTON, 27 DEC., 1845.

Of all the Periodical Journals devoted to literature and science which abound in Europe and in this country, this has appeared to me to be the most useful. It contains indeed the exposition only of the current literature of the English language, but this by its immense extent and comprehension includes a portrait of the human mind in the utmost expansion of the present age.

J. Q. ADAMS